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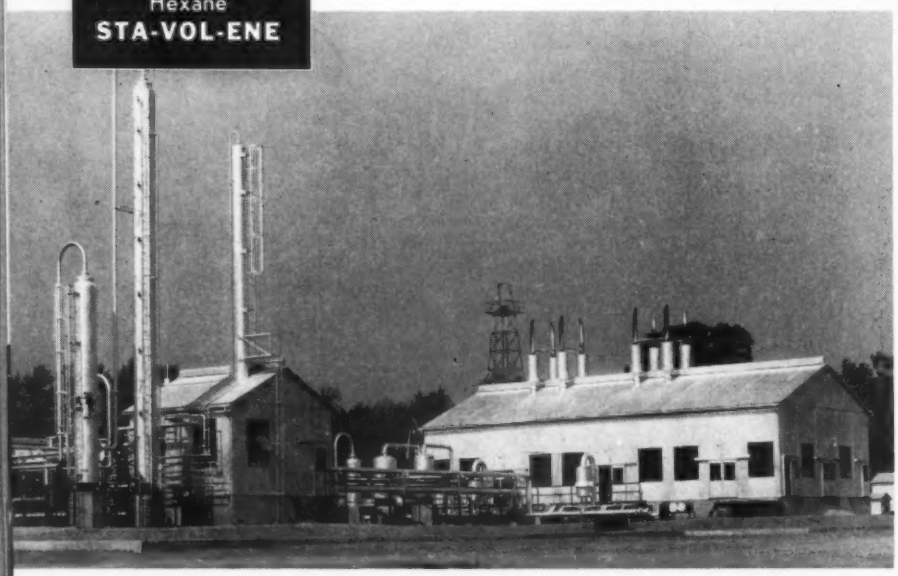

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THE OIL AND GAS JOURNAL

Prompt Action Needed

UNMITIGATED mischief will follow the Supreme Court's legalistic and unrealistic decision in the so-called "tidelands" case unless Congress takes prompt action to offset it.

It unsettles the titles to millions of acres of submerged coastal lands, stops further petroleum development of them, and deprives the coastal states of revenue from and control over offshore oil operations.

The majority opinion is based on the concept of an all-powerful national Government with limited jurisdiction reserved to the states—just the opposite of the intent of the framers of the constitution. It is one more in a series of decisions of the past 15 years greatly enlarging the domain of the federal Government.

About a decade ago certain social planners in the Washington administration began casting envious eyes on the subsea oil production off southern California. Federal ownership, it was argued, would permit underwater oil deposits to be locked up as a national "reserve" for a future emergency.

Federal ownership of the marginal sea was a novel idea, unsupported by court precedent, legislative enactment, or actual practice, all of which consistently assumed that the individual states owned the ocean bed out to the international boundary. Several times Congress refused to condone the federal claim. Nevertheless, former Secretary Ickes and his group continued their agitation. The campaign became twisted to the point where it was labeled an "oil grab" on the part of major companies and greedy states. The public was led to believe that millions of barrels of the nation's oil was being stolen.

Now the Supreme Court has said that for 150 years the coastal states have been acting under a misapprehension and that they never did own below the low-tide mark. This is now the law of the land, and it is pointless to rail at the decision. It is up to Congress to correct the damage.

Unless there is legislative relief, it will require interminable litigation to determine the status of piers, fisheries, and other developments on the ocean floor in addition to oil operations, plus expensive surveys to fix the low-tide mark and the limits of bays and harbors. Meanwhile, neither federal nor state governments appear to have authority to issue new drilling permits offshore, and the status of present producing wells is in great doubt.

Practical problems raised by this decision are legion. New ones arise daily. There is certainly no evidence that the federal Government can do a better job of developing and conserving the oil and other resources of the marginal sea than the states have been doing. All coastal states and their lessees should join in convincing congressmen from inland states that the problem can be solved only by a law giving back to the states the jurisdiction they have exercised since they joined the Union.

"Oil Shortage" Excites Washington; Export, Tanker Bills Passed

WASHINGTON. — The sudden discovery that the nation faces an "oil shortage" has all official Washington in a dither, and Congress is reacting with hasty legislation and investigations.

The news broke all at once that the Army and Navy are having difficulty getting bids for petroleum supplies, that several oil companies in the Middle West are allocating deliveries to their dealers, and that Russian tankers are loading in Los Angeles for export to Siberia.

Among the actions taken were:

Both House and Senate rushed through without a word of debate a resolution to permit the Maritime Commission to operate some 250 tankers until March 1, 1948. The administration had been pleading for this for months but had just about given up hope that it would be enacted prior to June 30 when its authority was due to lapse.

The House interstate commerce committee which for several years has made periodic studies of the petroleum industry opened hearings on government requirements and other aspects of the supply situation.

Sen. George Malone of Nevada announced that his resources subcommittee of the Senate public lands committee would hold hearings on the oil shortage July 14 and 15.

Sen. Edward Martin of Pennsylvania demanded an immediate embargo of all exports of pipe, tubular goods, and plates from which pipe may be made as a means of increasing domestic oil production and transportation, and announced that his subcommittee of the Senate small business committee would investigate exports of steel products needed by the oil industry.

Three different bills to continue export controls beyond June 30 were rushed toward action, with amendments to make certain that they cover export of petroleum products. Because of the fear that there might be a hitch causing a hiatus in controls after June 30, a special resolution was rushed continuing the old law for 2 weeks while Congress untangles details of the more permanent legislation.

The Commerce Department reimposed its former system of export licenses for petroleum products, effective June 30.

Export Prohibition

Rep. Alvin F. Weichel of Ohio introduced a bill to prohibit export of any petroleum product to any foreign country unless the War, Navy, and Commerce departments all certify in writing that it will not impair the national defense nor the continuous nonrestricted use of petroleum products in the United States.

Weichel summoned the House committee on merchant marine, of which he is chairman, to investigate reports that the Soviet tankers now on the West Coast were obtained through lend lease and have not been paid for, and also to look into the whole question of petroleum exports.

The Navy announced that it will import 500,000 bbl. of Navy special fuel oil per month from the Persian Gulf to the U. S. East Coast for the next 6 months in order to build up stocks which it said are inadequate to meet an emergency.

Sen. Owen Brewster of Maine introduced a resolution calling for a Senate investigation of the oil shortage, lack of sufficient oil transportation facilities, and the depletion of miilitary and civilian reserve stocks.

Sen. E. H. Moore of Oklahoma issued a statement blaming the oil situation on unprecedented civilian demands, the steel shortage, and rigidity of government purchase procedures, and warning against imposition of government controls on the oil industry.

The Commerce Department stated that if its export control power is continued it will impose individual license requirements on the export of all steel pipe to give complete control of end use as well as country of destination. *(For further details, see Watching Washington, page 68.)*

New Texas MERs Bring Allowable Adjustments

AUSTIN.—The Texas Railroad Commission issued an order June 30, reducing the allowable of 75 fields a total of 60,678 bbl. daily, effective July 1. The action followed a study of new estimates of maximum efficient producing rates which indicated that those fields were producing at rates too greatly exceeding the MER estimates compiled for them.

Most of the fields affected are located in the Gulf Coast. The reduction may be partially or wholly offset later this month by increases granted West Texas fields, most of which are producing at rates below their MER's. A hearing has been called for July 9 at the request of three major purchasers in that area who desire allowable hikes.

Covering a total of 490 fields and reservoirs on which the commission heard testimony in May and June, the new 1947 MER report shows those fields capable of producing a maximum of 1,653,317 bbl. daily without damage to reservoirs. This figure exceeds the June net daily allowable for the same fields by only 1,644 bbl., revealing that as a group, these fields are producing almost exactly at their estimated MER's. Actually, many are producing well over the maximum rate, since West Texas fields, due to insufficient transportation facilities are in general held to rates less than they can produce efficiently.

The new MER figures reflect increases in Texas' maximum producing rate in all but District 2 (Lower Gulf Coast). District 8 (West Texas) showed the greatest gain—17 per cent over 1946. Compared with the same fields surveyed in 1946, current MER's are up 2.4 per cent. New fields added to the 1947 list swell the increase over 1946 to 9.5 per cent. The MER report does not cover marginal pools and pools exempt from shutdown.

General Increase Made By California Standard

A GENERAL crude-oil price increase materialized July 1 for California producers when Standard Oil Co. of California announced an "across the board" boost of 20 cents.

California Standard's announcement came June 26, 2 days after Union Oil Co. of California posted crude increases ranging from 7 to 30 cents per barrel, effective June 25.

The California Standard general increase covering all gravities and all fields was expected to be followed by other West Coast companies.

At the same time, California Standard announced it is raising heavy fuel-oil prices by 20 cents a barrel. Union had announced a 35-cent a barrel increase in the price for fuel and heating oils of all types.

The new price for Signal Hill crude of 27° gravity, was brought to $1.95 per barrel by California Standard's raise. Union's new price for the same gravity crude was $1.97.

"We are reluctant to make these adjustments," an official of California Standard said. "We had felt it would not be necessary to increase crude or heavy fuel-oil prices, but we must make these changes to meet competitive prices and premiums that are now being paid by other crude-oil purchasers."

Neither California Standard nor Union announced any increase in the price of motor fuel.

Senate Committee Approves Treaty With Reservations

WASHINGTON. — The Senate foreign-relations committee July 1 approved the Anglo-American petroleum agreement after incorporating five reservations, three written by the American Petroleum Institute and two by the committee itself.

The committee's favorable action on the treaty was taken over the objection of Sen. Tom Connally of Texas. Sen. Arthur H. Vandenberg, of Michigan, chairman of the committee, said he hoped for early approval by the Senate.

Before the agreement can become effective, however, the reservations specified by the Senate committee must be approved by the British Government with whom the treaty was negotiated.

The committee reservations made it clear that the international commission proposed in the agreement will have no power to interfere with tariffs on oil imports which may be imposed by either the United States or the British.

The three A.P.I. reservations, which followed the Institute's action last November in reaffirming its stand supporting the agreement, provide the commission will have no authority over the domestic petroleum industry, that there will be no encroachment on state authority, and that existing contracts in the international petroleum industry will not be affected.

Earlier, Ralph T. Zook, Bradford, Pa., producer and former president of the Independent Petroleum Association of America, filed a statement with the committee which he said was necessary to correct certain erroneous remarks made by H. J. Porter, Texas independent, in his testimony opposing the agreement.

Zook described as "directly contrary to the facts" Porter's testimony that he (Zook) had supported the earlier 1944 agreement and was "for any kind of a treaty." Zook was a member of industry advisory groups which aided the State Department in negotiating both the present agreement and the one in 1944 which was later withdrawn.

Zook took occasion to repeat his support of the agreement. He said he believed the action of the I.P.A.A. last October in reversing its indorsement of the treaty was due "to confusion in the minds of some of the producers caused by statements made in a broadcast by two State Department representatives August 17, 1946."

Bradford, Allegany Crude Raised to $4.30 Per Bbl.

OIL CITY.—An increase of 25 cents per barrel in the market price of Bradford and Allegany district grades of Pennsylvania crude was announced June 30 by South Penn Oil Co. and the Joseph Seep Purchasing Agency of Bradford. The increase went into effect July 1, and brings the price for these two grades to $4.30 per barrel.

The company announced that the increase applies only to the two districts and is not effective for Pennsylvania crude oil purchased in other districts of the region.

The price of Middle District Pennsylvania grade crude oil was increased 25 cents per barrel July 1, meeting the Joseph Seep Agency's similar boost in prices of Allegheny and Bradford crudes. Middle District crude is now selling for $4.17 per barrel.

While the announcement of the South Penn company and the Seep agency contained no reference to the reason for the increase posting in the Bradford and Allegany districts, it was pointed out by persons in close touch with the situation that in recent weeks there has been considerable competitive bidding on the part of the refiners for Bradford and Allegany crudes.

It has been impossible to meet the requirements of refiners from stock since, for some time past, there has been no available crude oil for merchandising and no stock on which to draw to meet these requirements.

The delivered price of Bradford and Allegany grades to refiners south of Warren and north of Pittsburgh will, as a result of the increase, now equal the delivered price of Eureka grade delivered to the same refiners.

Barnsdall Sells Bareco Interest to Phillips

The sale of the entire holdings of Barnsdall Oil Co. in Bareco Oil Co. to Phillips Petroleum Co. was disclosed July 1.

Barnsdall interest consists of 166,535 shares of Bareco stock which was sold for $8 a share to Phillips, subject to approval by the Department of Justice. William Dewey Loucks, chairman of the board of Barnsdall, said the deal included certain crude oil along Barnsdall's South Texas pipe line with terminal at Corpus Christi.

Bareco has outstanding 816,717 shares of its authorized 1,500,000. The company operates a refinery of 7,000 bbl. daily capacity at Wichita and a wax plant at Barnsdall, Okla.

Exports of Paraffin Wax Below Prewar Percentage

Although the United States production of paraffin wax in 1946 was 77.4 per cent above the 1937-39 average, the volume of exports of the product was 10 per cent below the average for the prewar years.

In reporting 1946 exports of paraffin wax at 200,724,626 lb., the fuels and lubricants section of the Department of Commerce pointed out that before the war annual exports ranged from 44.4 to 50.1 per cent of the annual domestic output. The 1946 exports represented only 23.9 per cent of total production. United States 1946 wax production was 840,840,000 lb., an all-time high.

Since production and refining facilities in Burma and the Netherlands East Indies are not yet rehabilitated, the supply of paraffin wax available for consumption abroad is less than half that before the war. These countries supplied about half the world exports of wax in prewar years, while the United States supplied most of the remainder.

A reversal of the trend of relatively small wax exports from the United States, however, is indicated by figures for the first 3 months of this year showing exports totaling 29.4 per cent of the quarter's production of 259,000,000 lb.

Phillips Completes Survey For Borger-LaJunta Route

Phillips Petroleum Co. completed the survey of the Borger, Tex.-La Junta, Colo., section of the Borger-Denver 6-in. products line, between March 1 and June 15. Surveying was contracted by Pate Engineering Co. which put a crew in the field headed by Forrest R. Rees, geologist.

Oklahoma Bans Blasting

Blasting by seismograph crews along state and federal road right-of-ways has been banned by a recent order by H. E. Bailey, Oklahoma state highway director. The order resulted because of damage caused to road surfaces in the past by dynamite charges.

Journal's Editor Leaves for Alaska

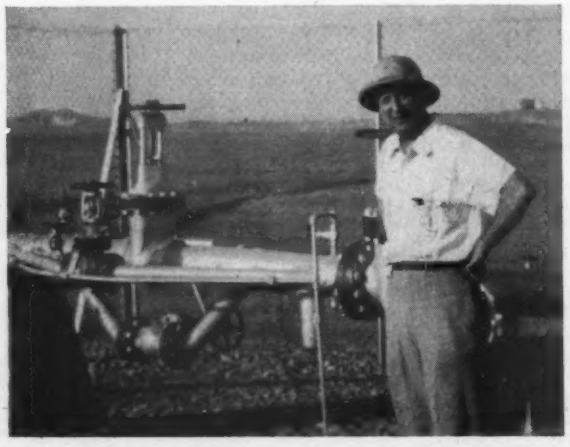
C. O. WILLSON, editor of The Oil and Gas Journal, left Seattle this week by air as the guest of the United States Navy to obtain a first-hand report covering exploration and drilling activities on the Navy's Alaskan reserve. Work on this reserve, consisting of 35,000 sq. miles southeast of Point Barrow, started in 1944, and the present schedule of activities is to be completed in 1950.

The Navy's search for oil within the Arctic area is conceded to be one of the most difficult exploration programs ever attempted anywhere. The major supplies for exploration and drilling have to be brought into the reserve from Point Barrow during the short summer period in which the Arctic Ocean is open to shipping. Several types of airplanes, tractors, and dog teams are used in transporting supplies to the operating points Willson's reports will bring Journal readers up to date on the Navy's oil activities and their importance to Alaska and the entire United States should major oil reserves be found.

Willson in 1945 spent 3 months visiting the producing and refining centers of Egypt, Iran, Kuwait, Bahrein Island, Saudi Arabia, Lebanon, Iraq, and other points. His series of articles in the Journal were the first complete and authoritative report of Middle East oil to appear in any publication. His reports have been widely utilized over the past 2 years because of the increasing importance of petroleum discoveries in that part of the world. On the same trip Willson spent some time in England and France reporting on postwar petroleum activities. Previously the Journal editor had made trips to many of the oil centers of South America, Trinidad, the Netherlands West Indies, and Mexico. The accompanying picture shows Willson at a 20,000-bbl. per day well in Kirkuk field of northern Iraq on V-J day.

Over the past several years the Journal has steadily expanded its coverage of oil activities outside the United States. Several members of the staff, including editors of the Petroleo Interamericano, the Journal's Latin American affiliate, have visited the oil areas of South America, Central America, and contiguous areas.

A series of articles on today's oil activities in South America by Kenneth B. Barnes, engineering editor of the Journal, starts on page 62 of this issue. Barnes recently completed a 3-month trip to Peru, Ecuador, Colombia, Venezuela, Trinidad, and the refining centers of the Netherlands West Indies.



On V-J Day, C. O. Willson, editor of The Oil and Gas Journal, was at this 20,000-bbl. daily well in Kirkuk field of northern Iraq

No Over-All Shortage in Prospect, Hallanan Says

"THERE is no over-all shortage of oil or its products, and none in prospect," Walter S. Hallanan, chairman of the National Petroleum Council, declared at the midseason meeting of the Marketing Division of the American Petroleum Institute in Minneapolis June 30.

"From a standpoint of supply and demand the situation is tight, but it is not one that should create any degree of panic," Hallanan asserted. "There is no reason for complacency, but I am impressed that the public has been sold extravagant pessimism. . . ."

"The problem facing the oil industry is not essentially one of shortage but it is to find means to get the right product to the right place at the right time," the speaker asserted. "In the face of tremendous increase in demand for petroleum products, we have every reason to believe that this demand could be met adequately if it were not for transportation bottlenecks that arise from inability to have sufficient basic steel materials to meet this vastly increased demand."

Sharply criticizing the governmental policy of permitting the export of tubular goods and other steel products to the disadvantage of our own economy, Hallanan declared that "through the control of the export of vital material, the Government is in effect continuing the price control abolished by Congress in response to an overwhelming public demand. At the same time," he continued, "it is building up the industry and war-making potentials of Europe, including Communist Russia, at the expense of our own national security and of the demands of our peace-time economy."

Would Have Built Pipe Line

The speaker asserted that the 82,250 tons of tubular goods exported in the first 3 months of this year would have built a 12-in. pipe line from West Texas, where he said additional crude supplies are available, to the refining and marketing area of the Chicago district. "That alone would solve all of the existing and threatened shortages in the Middle West," he said.

Eugene Holman, president, Standard Oil Co. (N. J.), also addressed the marketing division meeting and backed up Hallanan with regards to the supply of oil by stating that "there is no basic shortage of petroleum. The shortages we are talking about result from the industry's difficulty in closing a small but significant gap between a record supply of petroleum products and a record demand for them."

Holman declared that the job of keeping the individual consumers supplied with petroleum products would be more difficult in the Mid-West than anywhere else in the country. Transportation and distribution difficulties in the Midwest may cause temporary short supplies in individual localities or for an individual supplier, he said. Holman added that "the current tight supply situation is a temporary, not a permanent one. The expansion and construction programs now planned or in progress will restore the industry's traditional margin of supply over demand.

Socony-Vacuum Tanker Back From War Service

The 15,910-ton tanker, "Tascalusa," went back into service recently in the coastwise fleet of the Socony-Vacuum Oil Co., Inc., after a brief ceremony at Port Socony, Staten Island, marking its return from wartime service with the U. S. Navy.

The ship will operate principally between Beaumont, Tex., and eastern seaboard ports, joining a fleet of 20 other Socony-Vacuum tankers of comparable size.

this week

TREATY—Senate foreign relations committee approves Anglo-American agreement after incorporating A.P.I. reservations as well as two of its own. . . . Committee's reservations make plain that the proposed international commission has no power to interfere with tariffs on imports. . . .

SUPPLY—Congress extends present export control legislation while both branches work on long-range plans certain to include petroleum and likely to clamp down on steel products exports. . . . ¶Walter S. Hallanan, NPC chairman, and Eugene Holman, Jersey Standard president, reiterate no over-all shortage of petroleum products is in sight in addresses at A.P.I. marketing meeting in Minneapolis. . . . ¶Investigations of various phases of petroleum supply situation under way or scheduled by three congressional committees . . .

REFINING—Pan American Refining buys 7,500-bbl. Stone Oil Co. refinery at Texas City. . . . ¶WAA announces bids to be opened August 4 for sale or lease of 100-octane plant operated by Associated Refineries during the war near Duncan, Okla. . . . ¶Taylor Refining announces resumption of full production of 30,000 bbl. daily at Corpus Christi plant. . . .

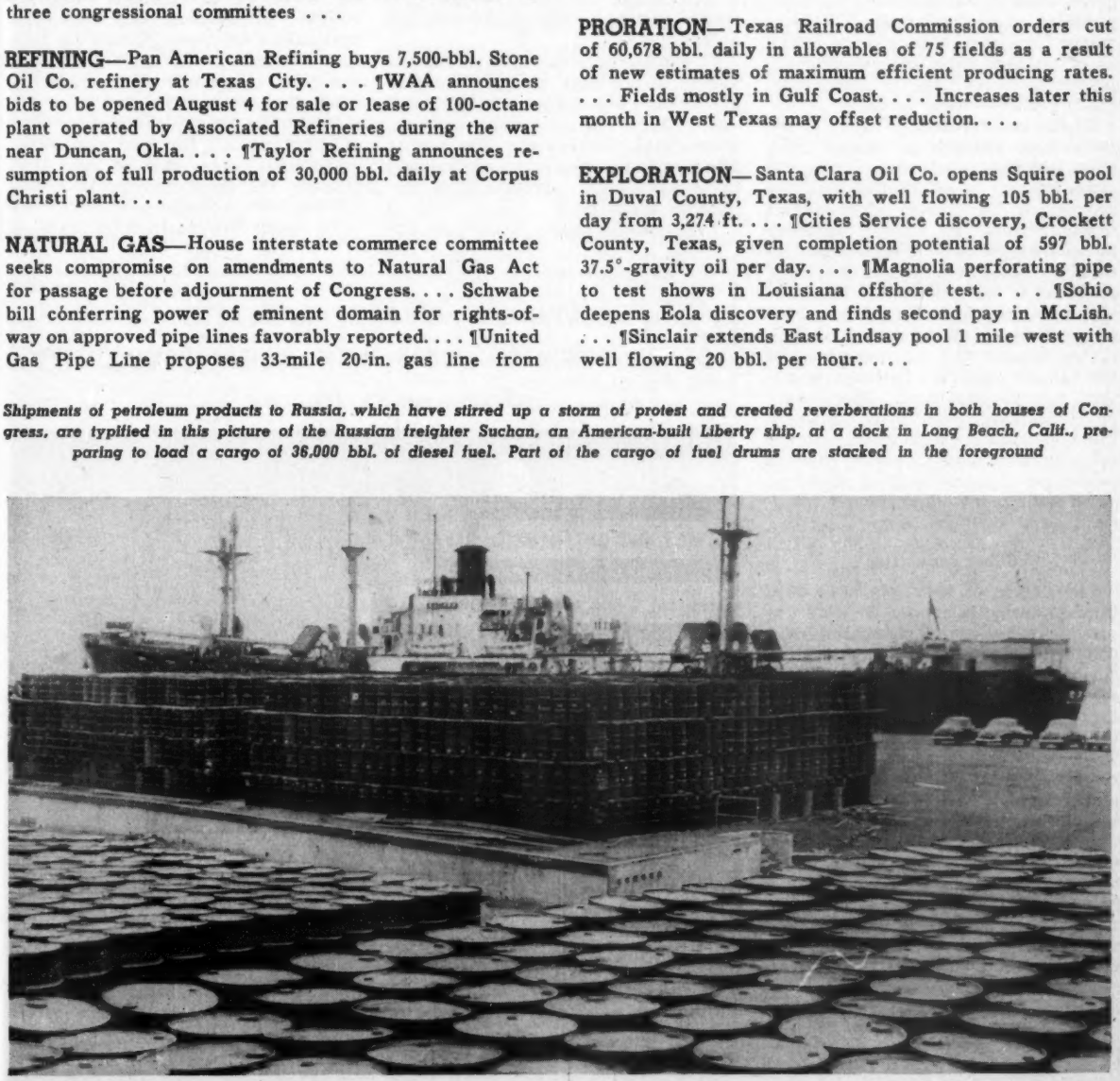
NATURAL GAS—House interstate commerce committee seeks compromise on amendments to Natural Gas Act for passage before adjournment of Congress. . . . Schwabe bill conferring power of eminent domain for rights-of-way on approved pipe lines favorably reported. . . . ¶United Gas Pipe Line proposes 33-mile 20-in. gas line from Carthage field to near Longview to increase delivery capacity and to provide gas for the Big Inch. . . . ¶Paul Kayser, El Paso Natural Gas president, confers in San Francisco with officials of Pacific Gas & Electric Co. on proposal to lay second natural gas line to West Coast. . . . Line costing $70,000,000 would extend to San Francisco and have a capacity of 200,000,000 cu. ft. daily, according to reports.

PRICES—Standard of California follows action of Union Oil, announces 20-cent "across the board" hike for crude it purchases and increase of same amount for heavy fuel oil. . . . ¶Price of Bradford, Allegany, and Middle District Pennsylvania Grade crude boosted 25 cents. . . . Bradford, Allegany crude now bringing $4.30 per barrel.

PRORATION—Texas Railroad Commission orders cut of 60,678 bbl. daily in allowables of 75 fields as a result of new estimates of maximum efficient producing rates. . . . Fields mostly in Gulf Coast. . . . Increases later this month in West Texas may offset reduction. . . .

EXPLORATION—Santa Clara Oil Co. opens Squire pool in Duval County, Texas, with well flowing 105 bbl. per day from 3,274 ft. . . . ¶Cities Service discovery, Crockett County, Texas, given completion potential of 597 bbl. 37.5°-gravity oil per day. . . . ¶Magnolia perforating pipe to test shows in Louisiana offshore test. . . . ¶Sohio deepens Eola discovery and finds second pay in McLish. . . . ¶Sinclair extends East Lindsay pool 1 mile west with well flowing 20 bbl. per hour. . . .

Shipments of petroleum products to Russia, which have stirred up a storm of protest and created reverberations in both houses of Congress, are typified in this picture of the Russian freighter Suchan, an American-built Liberty ship, at a dock in Long Beach, Calif., preparing to load a cargo of 36,000 bbl. of diesel fuel. Part of the cargo of fuel drums are stacked in the foreground



Oil-Equipment Price Hikes Below Average, Journal Survey Shows

by C. O. Willson

PRICE increases in oil-country goods have been less than the advances in similar products of other manufacturing and supply industries and substantially less than the increases in all commodities. This comparative price situation was readily apparent from a survey which has just been completed by The Oil and Gas Journal.

In the survey, representative manufacturers and supply companies serving the drilling, producing, and pipe-line divisions of the petroleum industry were asked to provide data giving the price increases in their products since December 1941 at which time their prices were frozen as of October 1941. Only minor adjustments were made in prices during the price-control period.

In the accompanying Table 1, the percentage changes in several specific products and several general classifications of oil-country products are shown. The survey showed that manufacturers in many instances have changed the specifications of their products and this, of course, is reflected in the prices now effective.

It is impossible to list the hundreds of products of the various manufacturers serving the oil industry, but the tabular data are believed to reflect general conditions. There were price increases under those shown in the table and some were higher, the latter in most cases involving changes in design of manufactured or fabricated equipment which added materially to production costs.

Other Industries

The December 1941 data were used in the Journal's survey in order to provide a basis for comparison with commodity indexes of other product classifications as compiled by the Bureau of Labor Statistics of the U. S. Department of Labor. The changes in these price indexes are shown in Table 2. The indexes of the Bureau of Labor statistics do not include classifications which would be representative of oil-country goods.

A comparison of information contained in Tables 1 and 2 does show that the average increase of around 25 per cent in the principal oil-country items is much less than the advances in other commodities. This includes products and equipment comparable in manufacturing costs to oil-country goods.

The large gain in raw materials costs from 92.3 in December 1941 to 160.1 in April 1947 as shown in Table 2 is reflected in the costs of manufacturers serving the oil industry. One representative manufacturer summarized this situation as follows: "By way of comments regarding the price situation in our field, may we state that we feel our general increases from 1942 up to this date are indeed reasonable, considering the fact that our labor rates have increased well above 50 per cent during the same period of time, together with considerably larger increases on raw materials, castings, component parts, and accessories."

This manufacturer explained his advances in products, saying, "There is no question that higher efficiency and vastly improved production methods have considerably offset the higher labor and material costs, permitting us to keep price increases to a reasonable minimum."

Two manufacturers located in different areas show wage increases of 44 and 43 per cent, respectively. Another manufacturer explains his labor rates are up 30 per cent with productivity down 60 per cent. These factors were mentioned by manufacturers as being matters affecting price along with raw-material costs, which are beyond their control.

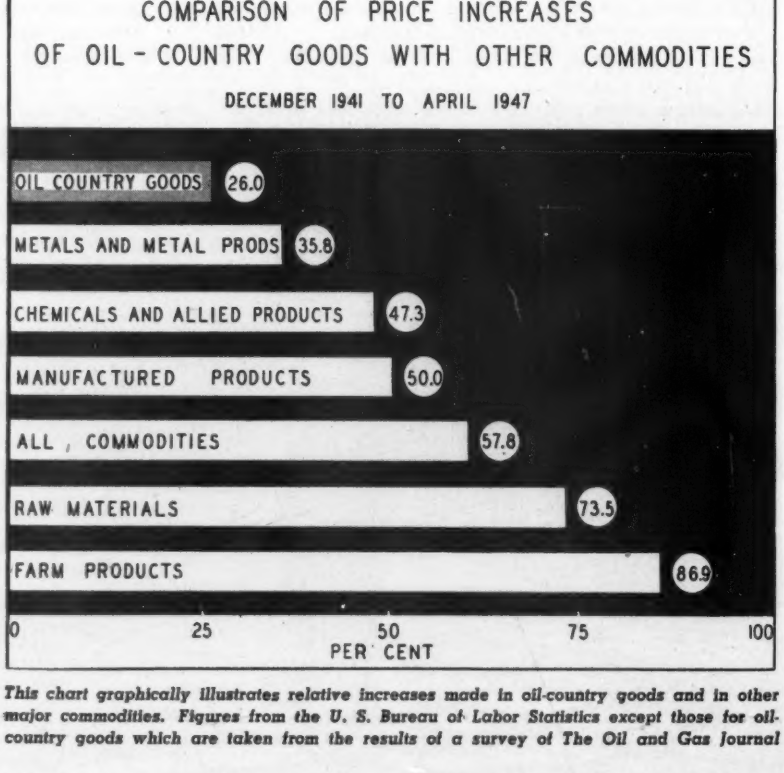
Another important factor entering into the delivered costs has to do with higher rail freight rates and much higher charges for motor transportation. The following table gives the carload rates per 100 lb. subject to 3 per cent federal tax:

	Rates prior July 1, 1946	New rates
From Birmingham, Ala., to:		
Tulsa and Shreveport ...	96	106
Houston and New Orleans	75	85

Manufacturers Comments

Following are comments from manufacturers regarding conditions affecting their prices:

Bearing manufacturer: "Currently we are taking a constructive step, we believe, in advising our customers that prices on bearings will be held firm throughout the third quarter of this year. Since our observation has been that most manufacturers are still quoting prices in effect at time of shipment, we feel that our declaration that prices will be held firm through the third quarter is a stabilizing and constructive step. We have taken this position in spite of



This chart graphically illustrates relative increases made in oil-country goods and in other major commodities. Figures from the U. S. Bureau of Labor Statistics except those for oil-country goods which are taken from the results of a survey of The Oil and Gas Journal

TABLE 1—PERCENTAGE INCREASES IN OIL-COUNTRY PRODUCTS DECEMBER 1941 TO APRIL 1947

	Per cent representative increase
Cable drilling tools	20
Cable fishing tools	20
Crown and traveling blocks	20
Engineering specialties	10-35
Oil and gas separators	22½
Packers	14-20
Portable drilling equipment (over-all)	22
Power boilers	20
Production equipment (over-all)	29
Pumps and engines (depending upon type and size)	20-50
Pumping units (according to hp.)	27-30
Rotary drilling equipment (over-all)	20-25
Rotary tool joints	20-21
Rubber products — V-belting, flat belting, steam hose, etc.	34.5
Standard rig materials and rig irons	21
Steel derricks and substructures, galvanized	22.2
Steel derricks and substructures, painted	16⅔
Storage tanks—standard types, non-pressure, excluding floating roof, pontoon roof, and similar types	20
Storage tanks — standard pressure types, shop welded	20-30
Sucker rods	26.5
Tubular goods (steel) average	15-20
Valves and fittings	10-26
Well-head equipment	20
Bearings for oil-field equipment (average)	20

TABLE 2—INDEX NUMBER OF WHOLESALE PRICES BY GROUPS AND SUB-GROUPS OF COMMODITIES*

(1926 = 100)

Groups and subgroups—	April 1947	Dec. 1941	Per cent increase
All commodities	147.72	93.6	57.8
Farm products	177.0	94.7	86.9
Foods	162.4	90.5	...
Textile products	139.2	91.8	...
Fuel and lighting materials	103.4	78.4	...
Metals and metal products	140.32	103.3	35.8
Motor vehicles	148.82	112.4	...
Building materials	178.8	107.8	...
Chemicals and allied products	133.2	90.4	47.3
Raw materials	160.1	92.3	73.5
Manufactured products	141.92	94.6	50.0

*Latest report of the Bureau of Labor Statistics, U. S. Department of Labor.

the fact that we have just offered our union increases amounting to 12½ cents per hour on rates under $1 per hour, and 10 per cent increases on rates over $1 per hour. While these increases have an appreciable effect on our costs, we have reason to believe that improvement in operating efficiency will largely offset the increases and so will justify our holding prices firm."

Power-rig manufacturer: "As you know, the present labor rate is more than double what it was January 1, 1942, and price of our raw and finished materials have gone up any place from 20 to 200 per cent. In the face of all these increased costs, we could not even begin to sell our products at the present prices if it were not for the fact that we have tooled up very efficiently to manufacture most of our products far more efficiently than we did 5 or 6 years ago."

Oil-field equipment manufacturer: "The greatest cost in the oil-tool set-up, whether a manufacturer or user, is obsolescence. The oil companies and drilling contractors have brought a great deal of this expense on themselves by their demand for special variations in many standard items. The use of standard products wherein parts are interchangeable and which can be produced in quantity is the only possible method by which any appreciable reductions in the price of drilling equipment can be accomplished. This is not to be confused with the costs of experimentation and improvements on old, present, or new products."

Valve manufacturer: "We see no probability of any additional increases on steel valves within the next 6 months to a year at least. This seems to be a fairly consistent attitude in the valve industry. On the other hand, there is very little we can do on steel valve prices. Generally speaking, profit margins in the valve industry have been substantially reduced since the end of the war. If there is any substantial reduction in output, the valve industry will undoubtedly be in an unsatisfactory price position. There seems to be little likelihood of reduced labor costs, and productivity per man-hour in most manufacturing plants is anything but satisfactory."

Machine manufacturer: "As you know, materials used in our equipment, as well as labor, has increased to a considerably greater extent than the increase shown above. Increased volume would allow us to make a reasonable profit on the above increase if we could buy all of our material direct from the mills and factories. As an example, we are today buying structural shapes in less than carload quantities from warehouse stocks and paying higher than regular warehouse prices in order to get the material and keep the plant going. We have purchased plate from warehouses, cut it up, and welded it into structural shapes in order to make deliveries on a reasonable basis. We are definitely not able to make a profit that our customers would say was reasonable, largely because of these conditions."

Drilling-rig manufacturer: "There is some objection on the part of our customers to the escalator clause on our quotations, but as our suppliers are still quoting us on that basis, we are compelled to continue to so quote. Even though we have received some increases in prices from our suppliers, we have not as yet applied them to prices covering our line, even though in some cases it is affecting our profit."

Petroleum Tax Receipts Up

Internal-revenue collections in May on lubricating oils were 56 per cent higher than the same month last year, on transportation of oil by pipe line 22 per cent, and on gasoline 12 per cent, according to Treasury Department figures.

Revenue on lubricating oils was $7,299,560 for May of this year as compared with $4,659,536 last year. Tax receipts on transportation of oil by pipe lines were up to $1,498,405 over $1,228,920. Gasoline collections increased from $29,061,094 to $32,710,683.

Texas and Kansas Properties Sold

Two deals involving the sale of producing properties in South Texas and in Kansas were revealed this week.

Homer Snowden, Dallas, bought the oil properties of H. H. Howell for a reported consideration of $2,000,000. The properties, all located in South Texas, include 29 oil wells and 3 gas wells in four fields.

Twenty-two producing wells in Bemis-Shutts pool, Ellis County, Burrton pool, Reno County, and Winfield area, Cowley County, changed hands when Sohio Petroleum Co. bought the Kansas producing properties of T. M. Deal Oil & Gas Co. Price was reported to be approximately $175,000.

Kansas and Louisiana July Allowables Increased

Kansas and Louisiana have raised their crude-oil allowables for July while the Oklahoma allowable remains the same as June.

The Kansas Corporation Commission set the July total at 290,000 bbl. per day, a 5,000-bbl. increase for the fourth straight month. In Louisiana, the Department of Conservation has raised the July daily quota to 471,295, 9,624 bbl. higher than for June.

The Oklahoma allowable remains at 385,000 bbl. for July, and several pools were cut back by the Corporation Commission. Allocations for the new Southwest Maysville and Southwest Wayne fields were reduced because of the lower oil production caused by gas-oil ratios established a month ago.

Exposition Office Opened

A downtown Tulsa office in the Hotel Tulsa has been opened in preparation for the resumption of the International Petroleum Exposition and Congress May 15-22. The office will be in charge of T. A. Walters, advertising and sales-promotion manager. W. G. Skelly, exposition president, said many exhibitors are now negotiating for space with indications the twenty-fifth anniversary exposition will be sold out before Labor Day.

International

WORLD-WIDE OIL DEVELOPMENTS

Cooperative Alliance Officially Proposes U. N. Oil Control

IN pushing its oft-repeated plan to put control of world's oil resources under the United Nations, the International Cooperative Petroleum Association, through its affiliated International Cooperative Alliance, last week, officially sought creation of such a U.N. oil authority.

If—a highly improbable if, competent authorities point out—such an authority should come into being, the co-ops would like to see Middle East oil given primary attention. The co-ops favor some sort of an allocation plan established whereby they, without having spent any of the millions of dollars which went into the exploratory and development programs, would benefit from the production.

In an earlier article (The Oil and Gas Journal, January 11, page 47) it was pointed out that the International Cooperative Alliance, by virtue of enjoying a so-called consultative status, as a nongovernmental agency, to the U.N.'s Economic and Social Council, has a voice, but no vote, in the U.N.'s world-wide economic planning.

Exactly how much weight that co-op's proposal will have with members of the Economic and Social Council remains to be seen. One of its top members earlier said in substance, "that we'd naturally consult the International Cooperative Petroleum Association on matters dealing with world oil." The political advantage which the International Cooperative Alliance wields through its consultative status appears obvious. But this is not to say that there will be no opposition to such a plan.

It was the possible organization of such a U.N. body which led some opponents of the proposed Anglo-American petroleum treaty to declare that the treaty was "only a stepping stone to some U.N. oil setup." Actually, this may not be so, but it is certain that the treaty opponents will now make much of the co-op's latest move in international oil. At one time the U. S. State Department indicated that it might not be opposed to some kind of an U.N. oil setup—even if only in the form of a petroleum adviser. Later U.N. officials denied that the adviser plan had ever been under consideration.

Would Serve as Tribunal

In addition to having power to plan and enforce oil conservation measures, the proposed U.N. oil body presumably would serve as a tribunal to adjust any oil disputes which might arise between companies or countries, or between individual lease holders and purchasers.

Whenever the question of an U.N. oil body has arisen, the co-ops, through various spokesmen, have emphasized the desirability of a nondiscriminatory clause whereby any purchaser could buy crude or its products anywhere and at any time.

It is certain that the co-op's proposed world oil plan will encounter stiff opposition from United States, British, Dutch and French officials. Moreover, it is likely that the Russians too will object, for the plan envisioned by the co-ops is a body to administer all world oil resources, including the Soviet's.

The co-op's U.N. world oil proposal is to be considered some time in July by the Economic and Social Council.

Government Policy Aids Nation, Betancourt Says

ROMULO BETANCOURT, Venezuelan president, has indicated his satisfaction with existing government-oil company relationships, including the present taxation policy.

In a statement made exclusively for Petroleo Interamericano, Latin American publication affiliated with The Oil and Gas Journal, the Venezuelan president listed several "local factors" contributing to the increasing importance of the Venezuelan oil industry as reflected in its rising production figures.

1. "Policy of the present administration of the Venezuelan state, which has steered clear of any demagogic attitudes towards the companies whose capital has been invested in the development of oil resources...

2. "One of the first acts of the present Government of Venezuela was to declare its intention to respect contracts and concessions granted by previous administrations with the understanding that the Government would endeavor to secure an adequate share for the treasury of the oil companies' income, and that this would be accomplished by means of a permanent amendment of the income tax law. This new tax policy, which has not been considered unfair by the oil companies, has served its purpose; that is, it has brought about a balanced ratio between the oil income of the treasury and that of the producing companies."

The third factor cited by Betancourt was the current labor contract which runs until the end of this year and which, he added, has "ushered in period of complete industrial peace in the largest oil-exporting country in the world."

The present situation in Venezuela's petroleum industry, Betancourt declared, "may be defined with unqualified optimism . . . The political stability of Venezuela, added to the above-discussed facts and to the solid backing given the government by the large majority of the Venezuelan people, contribute to strengthen the confidence with which we view the future of the petroleum industry as well as the other industries which make up the economic life of the country."

T.L.I. May Production

May production of Trinidad Leaseholds, Ltd., from its own fields, showed a slight gain over April with a total of 562,121 bbl. or a daily average of 18,133 bbl. In April, the company produced 528,147 bbl. for a daily figure of 17,605 bbl.

Major Share of Foreign Wells in Latin America

WITH increasing amount of study being given foreign oil statistics —particularly in Latin America and the Middle East—it is interesting to note that of the approximately 486,543 producing oil and gas wells in the world that 452,000, or 94 per cent, are in the United States, while only 34,543 wells, or 6 per cent, are in foreign fields. And of the total foreign wells, 58 per cent are in Latin America.

Out of a total of about 2,160 rotary drilling wells in the world, 1,736, or 81 per cent, are in the United States and the remaining 414, or 19 per cent, are in foreign lands. With the constant comparisons being made between oil production in the Western Hemisphere and the Eastern Hemisphere, it is notable that of the total foreign rotary drilling wells, 63 per cent are in Latin America.

Of the approximately 423,095 pumping oil wells in the world, 396,000, or 94 per cent, are in the United States while the remaining 27,095 pumping wells, or 6 per cent, are in foreign fields. Of the total foreign pumping wells, 57 per cent are in Latin America.

Exactly what the situation is in Russia continues a puzzle. However, reports from unofficial cources would indicate that around 500 rigs are now running throughout the Soviet Union. Many of these rigs were removed from Romania and other European countries since the end of hostilities.

The accompanying table presents a statistical survey of foreign crude-oil production coupled with the number of pumping and flowing wells, as well as the rotary and small exploratory rigs now running:

	Daily production	Total wells — Pumping	Total wells — Flowing	Total running — Rigs rotary	Total running — Small exploratory
EUROPE					
British Isles	1,192	241	....	3	8
Austria	20,200	52	367	10	..
Albania	3,000	400	155	0	..
France	1,080	750	4	12	4
Germany	13,000	(?)	(?)	18	..
Holland	900	7	1	3	1
Hungary	14,950	65	99	7	..
Romania	95,000	(?)	(?)	50	..
Italy	234	426	7	2	3
Denmark	.....	....	....	1	..
Spain	.....	....	....	1	..
Turkey	.....	....	....	..	6
Poland	10,000	1,800	2,000	6	..
Czechoslavakia	600	20	18	5	..
Total	160,066	3,761	2,651	118	22
MIDDLE EAST					
Bahrein Island	23,000	....	62	2	..
Iran	442,000	....	62	9	..
Iraq	96,000	....	11	1	..
Kuwait	40,000	....	5	*2	..
Qatar	.....	....	2	0	..
Saudi Arabia	173,000	....	39	7	..
Total	774,000	....	181	21	..
ASIA-AFRICA					
Egypt	25,000	102	26	4	9
India	6,900	209	2	1	8
Burma	21,000	4,129	0	0	..
Moroco	.....	....	....	2	2
Total	52,900	4,440	28	7	19
FAR EAST					
China	1,000	....	....	2	..
Borneo	50,000	1,400	0	†	..
Sumatra	112,000	1,600	....	†	..
Java	17,000	335	....	†	..
Ceram	1,500	50	....	0	..
Japan	4,000	220	31	4	..
Philippine Islands	.....	....	....	....	1
Total	185,500	3,605	31	7	..
LATIN AMERICA					
Argentina	61,460	3,357	250	34	3
Bolivia	950	11	15	2	..
Bahamas	.....	....	....	1	..
Brazil	1,000	22	12	5	..
Chile	0	....	2	1	..
Colombia	96,638	1,194	197	24	4
Cuba	502	225	0	....	..
Dominican Republic	.....	....	....	1	..
Equador	6,000	512	49	8	..
Haiti	.....	....	....	1	..
Mexico	128,000	3,651	904	22	..
Panama	.....	....	....	1	..
Peru	32,000	2,633	257	17	..
Nicaragua	.....	....	....	1	..
Trinidad	55,000	927	782	22	..
Venezuela	1,078,606	2,757	2,090	121	..
Total	1,433,156	15,289	4,558	261	..

*Five additional rigs moving into Kuwait within next few months. †About 40 rigs will be operating in these islands by first of 1948.

International

WORLD-WIDE OIL DEVELOPMENTS

Anglo-Iranian, A. G. I. P. Form Italian Company

To meet anticipated increased demand for petroleum products in Italy, a British-Italian oil company, Industria Raffinerie Olii Minerali per l'Industria del Petrolio in Italia (I.R.O.M.) has recently been organized.

Capital is 51 per cent subscribed by Azienda Generale Italiana Petroli (A.G.I.P.) and 49 per cent by Anglo-Iranian Oil Co., Ltd. Total initial capital of 1,000,000 lire (roughly $120,000) is expected to be increased to 600,000,000 lire within the near future through the assignment to I.R.O.M. of A.G.I.P.'s Porto Marghera (Venice) refinery. This refinery which had an annual prewar throughput of about 2,800 bbl. daily, is expected to be enlarged to handle about 7,600 bbl. daily.

In addition to enlarging the distillation and cracking facilities of the Venice refinery, indications are that a lubricating plant also will be constructed. Iranian crude oil probably will be imported.

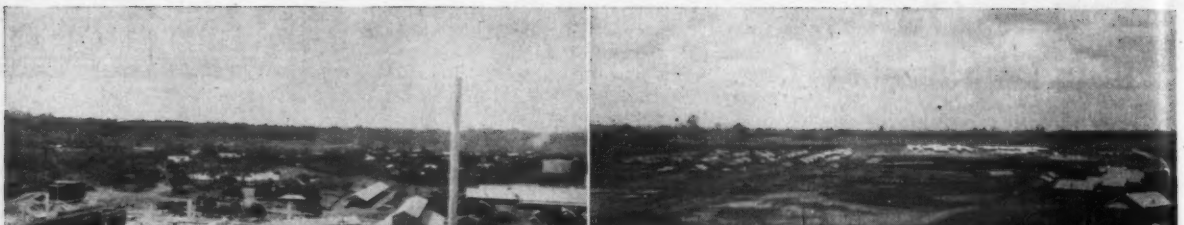
Other postwar arrangements, similar to the I.R.O.M. Anglo-Iranian deal, include a deal reported between The Texas Co. and Edison Electric Co. whereby these firms would build a refinery in western Italy. There is also an unofficial report that Russia and some Italian company might join forces to exploit Albanian oil fields in which the Italian Government is directly interested. Daily crude-oil production in Albania is believed to be around 3,500 bbl.

(For other Italian oil developments, see The Oil and Gas Journal, June 21, page 64).

Venezuelan Production Shows Decline in April

Production of crude oil in Venezuela dropped 16,430 bbl. daily in April, according to a report by the Oficina Tecnica de Hidrocarburos.

April production averaged 1,143,950 bbl. daily, against 1,159,763 bbl. daily in March. Lagunillas, largest producing field of the country, reflected the drop with an April output of 312,460 bbl. daily, against 315,358 bbl. daily in March.



Left: Infantas-La Cira fields.—Producing headquarters for Tropical Oil Co. is here, at "El Centro." Power plant to right; central gasoline plant and stabilizers to left; landscaped company houses in background. Right: Casabe field.—Partial view of the modern city that Cia. de Petroleo Shell de Colombia is hewing out of the Colombian jungle on its Yondo concession. Houses, dining halls, and service buildings are of attractive brick-and-tile construction

Modern Camps, Reservoir Control Feature Colombian Operations

by Kenneth B. Barnes

THIS is the broad picture of the Colombian oil industry today. The producing fields on active commercial production, as a whole, are holding steady. April 1947 crude-oil production from the country totaled 2,087,130 bbl. This production is at a rate almost exactly commensurate with that which prevailed in 1940, best year in Colombia's oil producing history.

A widespread wildcatting play for oil reserves continues. The search extends from the Caribbean seaboard on the north to the vast llanos or plains country on the southeast. In general, prospective oil areas are large, sedimentary deposits of good thickness and promising character, and there are plenty of structural features. However, only more exploratory drilling will tell whether or not these geological potentialities will eventually translate into proved fields.

Much of the long-pull future status—whether the industry will expand or gradually contract—depends on the ultimate success of the wildcatting program. This is because of the three principal producing fields, the largest is nearly completely developed and has had a settled decline for several years. The other two under continued development have a rising production which is keeping the total rate relatively constant.

Largest producing, refining, and pipe-line operation, and the oldest, is on the De Mares concession in the Middle Magdalena Valley. Second in production is the Barco concession, adjacent to the Venezuelan border. Third and newest field on full commercial production is Casabe. This is on the Yondo concession located on the west bank and directly across the Magdalena River from De Mares. The country has a number of other fields which are being developed; these together with details of current exploration activity will be described separately in another article.

First oil on the De Mares concession was produced in 1918 and to date that operation has produced 91 per cent of Colombia's oil. Maximum annual rate was reached in 1940 (61,000 bbl. per day). The rate for April 1947 was 35,931 bbl. per day. Barco, in April 1947, produced 21,186 bbl. per day, up 25 per cent from its 1946 average. Casabe field production for April 1947 was 12,454 bbl. per day, up 42 per cent from 1946.

All Industry Divisions Represented

Two refineries, one large and one small, two trunk pipe lines from the central interior to the Caribbean, and about 550 filling stations and market outlets complete the present Colombian oil picture. Added to the oil-producing fields and the wildcatting campaign, these give the country a completely integrated aspect in its petroleum activities. Approximately a dozen oil companies altogether are active in one or more of the aforegoing divisions.

The oil business in Colombia is related or interlocked to an unusual degree to the country's topography and physical and economic geography. In some sections there are large expanses of thick, humid jungles—in others, long mountain chains are interspersed with sharp, winding valleys. Transportation, therefore, usually is a tricky problem, whether movement of drilling rigs, producing and plant equipment, or petroleum products is involved. Transfer may be by railroad, by river boat, by road or cut-through trail, by air, or by various combinations of any of these.

Air Transportation

Transportation by air, both for passengers and freight, has advanced extremely rapidly, however, and the country is now crisscrossed both by international and domestic scheduled air routes. One of the most spectacular time savings that air transportation has made anywhere in the world is between Barranquilla and Bogota. The route from Barranquilla on the Caribbean, up the Magdalena River by shallow-draft paddle-wheel boat to Puerto Salgar and thence by rail up the Andes Mountains to Bogota at an elevation of 9,000 ft., requires from 5 to 14 or more days, depending upon river conditions. Scheduled airlines make the flight in 3 hours. Another transportation advantage for the country is that it is flanked both by the Pacific and the Caribbean, being served by the port of Buenaventura for the former, and

Journal Writer Reviews South American Trip

KENNETH B. BARNES, engineering editor of The Oil and Gas Journal and its affiliated South American publication, Petroleo Interamericano, made a 3-months trip through 15 Central and South American countries earlier this year to cover current oil activities.

Barnes visited and accumulated at first hand from the oil companies and government agencies a fact-by-fact listing from virtually every oil field, refining and operating center. The over-all picture, he reports, is one of phenomenal growth, with the oil scenes promising most remarkable futures. Supplies and manpower, he found, were badly needed everywhere, but even with the past and present scarcity new records constantly are being set.

This first report is on Colombia, and others will follow for the other oil countries he visited—Venezuela, Ecuador, Peru, Aruba, Curacao, and Trinidad.

KENNETH B. BARNES

International

by Barranquilla, Cartagena, and Covenas for the latter.

Middle Magdalena Valley

De Mares concession.—South 300 miles from Barranquilla and on the east bank of the Magdalena River is the large De Mares concession operated by Tropical Oil Co., subsidiary of International Petroleum Co., Ltd. [the latter an affiliate of Standard Oil Co. (N. J.)]. Supplies enter and products leave through the river port town of Barranca Bermeja, adjacent to which Tropical operates a complete refinery. Current throughput is about 14,000 bbl. per day. Plant design for processing is flexible both as to charging capacity and types of products made. Gasoline, naphthas, kerosine, light diesel oil, and bunkers are manufactured via topping operation by two tube still-fractionator units. In manufacturing lubricating oils, one of the units continues in topping, with reduced crude passing to the second unit. The second unit is then operated under 28-in. vacuum to produce a range of light, medium, and heavy lubricant distillates. A phenol extraction plant subsequently treats these fractions to finished products. In the vacuum operation, asphalt is produced as bottoms from the fractionator. A pentane splitter at the refinery processes casing-head gasoline received from the oil fields to produce a blended stock for aviation gasoline. The refining facilities also include a grease plant and complete canning, drum, and packaging equipment, and the refining and allied numerous marketing distribution points are geared to supply a majority of the domestic consumption of all petroleum products in Colombia.

Connected by the company railroad through the dense jungle, 15 km. (9.3 miles) distant are the two major oil fields on the concession—Infantas and La Cira. The two are en échelon—faulted anticlines. The discovery well at Infantas was drilled in 1918. This field covers 5,400 productive acres and now has 286 pumping and 4 flowing wells, and 4 drilling locations currently are active.

Pumping Arrangements

La Cira field, discovery in 1926, covers 12,700 productive acres and contains 608 pumping and 11 flowing wells. There are six active well locations at present. The two fields together have produced 360,000,000 bbl. of crude. One 24-well central power is operated, and there are about 20 backside-crank pumping arrangements handling two to four wells each. The rolling terrain and jungle-type country, however, have made the installation of these practical only in flatter spots. Other wells are operated by individual pumping units. Prime movers are all electrical motors. Carrier currents on the transmission lines from the 8,000-kw. generating plant control the time-cycle operation of different well groups to provide uniform load factors.

The three Eocene producing sands in the fields are found at depth ranges in the general limits of 400 to 800 ft., 1,200 to 1,800 ft., 3,200 to 4,000 ft. Gravity of the oil ranges from 21° to 27° A.P.I.

The big "El Centro" camp located in the middle of the two fields is headquarters for the producing operations and constitute a modern city. Emanating out to provide service access to the individual well locations which have been cleared from jungle growth and uneven terrain are over 300 miles of winding black-top roads. Dining halls, commissaries, clubhouses, hospital, a 3,000,000-gal.-per-day water plant, offices, laboratories, machine shops, warehouses, a foundry, ice plant, and kindred installations make El Centro complete for all personnel and industrial accommodations.

Conservation Features of Note

Conservation of all gas produced long has been a special feature of the producing operations. Five gasoline plants which contain a total of 68 compressor units process casing-head gas. From the absorbers, the stripped gas is compressed further and injected to the producing formations. There are 38 gas input wells at Infantas and 13 at La Cira. Four of the gasoline plants are in outlying positions in the two fields, and fat oil from the absorbers is carried by pipe lines

CRUDE-OIL PRODUCTION IN COLOMBIA, BY COMPANIES AND FIELDS (BBL.)

Company:	Tropical[1]	Colombian[2]	Condor[3]	Magdalena[4]	La Estrella[5] El Deficil	Sindicato[4]	
Concession:	De Mares	Barco	Yondo[5]	Cantagallo[6]		Floresanto	Total
1921-1936	185,857,636	.....	.....	.....	.....	.....	185,857,636
1937	20,297,846	.....	.....	.....	.....	.....	20,297,846
1938	21,581,588	.....	.....	.....	.....	.....	21,581,588
1939	22,377,169	1,486,079	.....	.....	.....	.....	23,863,248
1940	21,420,785	4,143,870	.....	.....	.....	.....	25,564,655
1941	20,735,078	3,904,247	5,722	.....	.....	.....	24,645,047
1942[7]	9,433,474	1,159,956	26,248	.....	.....	.....	10,619,678
1943[7]	11,620,749	1,773,878	53,505	13,000	2,426	.....	13,463,558
1944	18 067,827	4,579,648	56,646	40,395	24,530	1,096	22,770,142
1945	15,649,360	5,540,221	1,635,447	45,003	28,259	5,442	22,903,732
1946	13,030,196	6,184,674	3,208,649	44,258	43,875	6,522	22,518,174
Total	360,071,708	28,772,573	4,986,217	142,656	99,090	13,060	394,083,304

[1]Subsidiary of International Petroleum Co., Ltd. [2]Owned 50 per cent by Texas Co. and 50 per cent Socony-Vacuum. [3]Shell company. [4]Socony-Vacuum company. [5]Casabe field. [6]Formerly known as Cimitarra field. [7]Production restricted due to war risks to tankers.

to the central plant at El Centro for distribution and fractionation.

Andian National Corp. operates a trunk 10-in. crude-oil pipe line, nearly completely looped, to transport crude oil from El Centro to the ocean terminal at Cartagena. Built in 1926-1927, the 335-mile line has a capacity of 60,000 bbl. per day. There are 10 pumping stations, and these are equipped with diesel engines driving duplex and triplex pumps; range in total horsepower is from 1,080 to 1,400.

Casabe field, Yondo concession.— A total of 59 oil wells, with a score of only one dry hole so far, are found at this newest Colombian field to be put on commercial production. Casabe is located directly across the Magdalena River from De Mares and the operator, Cia. de Petroleo Shell de Colombia, brought in Casabe No. 1 in 1941. Producing depths are at 3,800 ft., and only 20 to 30 days are required for completion. Oil gravity is 22° A.P.I.

Protection From River Floods

The oil field location is on low ground and formerly was subjected to damaging floods by the river. To cope with the situation, an extensive dike system recently has been completed. This has virtually changed the appearance of the flat jungle country, "drying up" the ground and enabling a grid work of good field service roads to be build. Currently a modern camp is being constructed, with the program perhaps two-thirds complete. The new houses, dining hall, and other buildings are of attractive brick and tile construction, with these materials coming from a brick plant located on the concession. The installations are laid out along curving roadways, and landscaping and planting gives Casabe a pleasing appearance in its large "carved-out" area in the jungle.

Barco concession—A 1,000-ft. flowing well in the Petrolea North Dome field. The strong natural water drive will continue these wells on natural flow until final ultimate recovery is attained

WELLS DRILLED IN COLOMBIA, BY COMPANIES (1916-1946)

Tropical	*1,287
Colombian	†196
Shell	‡96
Socony	54
Richmond	31
Gulf	2
Texas	1
Total	1,667

*1,278 at De Mares. †All at Barco. ‡54 at Yondo.

A field booster station with two diesel units of 10 bbl. per day capacity each pumps the crude oil through a submarine line under the Magdalena River to Barranca Bermeja, where the Andian system carries it to Cartagena. The field is served by 6-in. main line with 4-in. crossfeeders from the new water plant, and the new power plant contains three 500-kw. diesel-driven generators.

Barco; Petrolea, and Tibu fields.— Adjacent to the Venezuelan border southwest of Lake Maracaibo lies the renowned Barco concession, containing 460,000 acres. The property made its big start in 1933 when a 2,500-bbl. flowing well was brought in at 708 ft. Extended development work was commenced in 1937 by Colombian Petroleum Corp., owned by The Texas Co. and Socony-Vacuum Oil Co., Inc. The two principal producing structures are the shallow Petrolea North Dome in the southern portion of the concession, and the Tibu area near the center.

Producing Formations

There are five producing formations at Petrolea, ranging from grassroots depth to 1,400 ft. The producing formations here mostly are fractured Cretaceous limestones, and some of them produce under influence of a very strong natural water drive. There are now 60 wells on production, and the daily runs are approximately 10,000 bbl. Only about one-half of the original number of completions are in use, since for some time a careful program has been in effect to conserve gas by closing in high gas-oil ratio wells in updip locations, and in plugging back high water-oil ratio wells in downdip areas. Recovery to date from the structure has been over 27,000,000 bbl.

The Tibu area contains an extensive structure with large closure. The Barco sand of the Tertiary is found at 4,200 to 5,200 ft., and the Lower Cretaceous is productive at a depth of about 10,000 ft. There are 32 Barco sand producers, 5 pumping; the gravity is 31°-32°, and gas-oil ratio ranges from 150 to 700. The Lower Cretaceous development has had four tests with two productive; the Tibu 4K originally flowing 650 bbl. per day of 52°-gravity crude on choke. Potential productivity at Tibu totals about 10,000 bbl. per day. Four rigs are drilling on Barco sand development, and two for the deep Cretaceous pay.

Camp sites are maintained by Colpet both at Petrolea and Tibu, and the two are connected by 60 km. (about 37 miles) of company-built roads and bridges. The route winds through mountainous terrain and sharply cut valleys. Extensive warehouses, machine and welding shops, production office and a petroleum-engineering laboratory, dormitories, dining hall, and other camp establishments are located at Tibu, now the central point for the drilling and production activities. Other similar establishments, including a hospital, are located at Petrolea. Also at Petrolea, Colpet operates a small but modern and well-maintained topping plant of 700-bbl.-per-day capacity. Charged on the 46°-gravity crude, the plant recovers 36 per cent or more 300° end-point gasoline and fuel oils sufficient for local demands. Residue joins the main pipe-line crude movement to the coast.

A 12-in. trunk pipe line runs 261 miles from the Barco to the loading terminals on the Caribbean at Covenas. The line, built by South American Gulf Oil Co. in 1938 at a cost of $19,000,000, crosses the Cordillera Oriental range of the Andes Mountains at an elevation of 5,300 ft. Supplying pressure for this big push upwards are three pumping stations, Petrolea, Tara, and Convencion; the present line capacity with these stations is approximately 25,000 bbl. per day. After crossing the Andes, the oil gravitates the remaining 185 miles to the marine terminal at Covenas where tankers are loaded at a dock at the end of a submarine line.

Prewar Production Level Seen for Port Jerome

Standard Francaises des Petroles, a subsidiary of Standard Oil Co. (N. J.), hopes to be refining 24,000 bbl. daily by July, according to a Paris dispatch from Reuters. This would bring the Standard Francais refinery at Port Jerome back to its prewar daily throughput.

Output last year was only 40 per cent of the prewar level, but by the end of 1946 the company was again producing lubricating oil and restored 50 per cent of its storage facilities.

At present, Standard Francaise is distributing 50 per cent of the gasoline it distributed before the war; 85 to 95 per cent of the lubricating oils and greases, 45 to 65 per cent of fuel oils, 75 per cent of tars, and over 100 per cent of diesel oil.

AN EXAMPLE:

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for the protection of volatile liquids from evaporation losses and fire hazard
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THE HORTON DOUBLE-DECK FLOATING ROOF

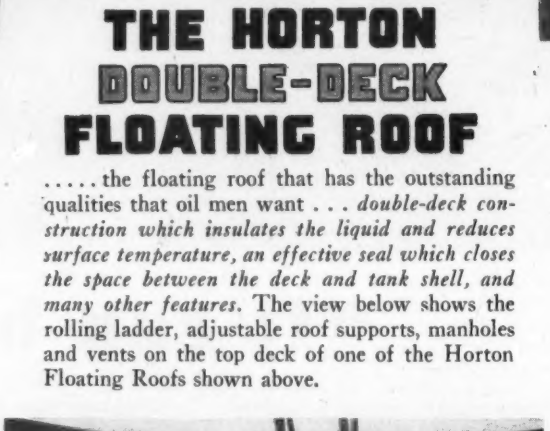
HORTON Double-Deck Floating Roofs are providing the petroleum industry with top protection from evaporation loss and fire. The widespread use of this roof throughout the industry is indicative of its efficiency.

When installed on flat-bottom tanks storing volatile liquids that do not boil at normal temperature, the Horton Double-Deck Floating Roof stops all evaporation losses due to filling and, thus, is particularly recommended for use on tanks that are filled or emptied more than six times a year. It also eliminates practically all standing storage losses and reduces fire hazard.

The Horton Double-Deck Floating Roof pays for itself in a relatively short time when used at refineries, pipe line stations, natural gasoline plants, tank farms and bulk stations. Get full details from our nearest office. (If you are already using Horton Double-Deck Floating Roofs—ask for reprint of article by CB&I Engineers on the operation and maintenance of floating roof tanks.)

The above view shows two flat-bottom tanks equipped with Horton Double-Deck Floating Roofs. The one at the left is 60 ft. in diam. by 40 ft. and holds 20,000 bbls. The one on the right is 85 ft. in diam. by 40 ft. It holds 40,000 bbls. They are located at the Nashville, Tenn., terminal of the Arkansas Fuel Oil Company.

. . . . . the floating roof that has the outstanding qualities that oil men want . . . *double-deck construction which insulates the liquid and reduces surface temperature, an effective seal which closes the space between the deck and tank shell, and many other features.* The view below shows the rolling ladder, adjustable roof supports, manholes and vents on the top deck of one of the Horton Floating Roofs shown above.



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Los Angeles, 14.....1423 Wm. Fox Bldg.
Atlanta, 3.....2154 Healey Bldg.
Birmingham, 1.....1536 North 50th St.
Tulsa, 3.....1606 Hunt Bldg.
Houston, 1.....5619 Clinton Dr.
Philadelphia, 3.....1615-1700 Walnut Street Bldg.
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Rocky Mountain Unitization Trend Described at A.P.I. Meeting

UNIT operation is proving most successful in the Rocky Mountain area with a total of 165 units now approved for Colorado, Wyoming, Montana, and Utah, J. F. Cullen, division manager of Stanolind Oil & Gas Co., Casper, Wyo., told members of the Rocky Mountain district, Division of Production of the American Petroleum Institute, June 25.

Cullen spoke at the annual meeting of the recently reactivated A.P.I. group which was held at Yellowstone National Park. The 1-day meeting was followed by the midsummer directors' meeting of the Rocky Mountain Oil and Gas Association June 26-27.

H. A. STEWART

R. B. CURRAN

New chairman of the Rocky Mountain district, A.P.I. Division of Production, is H. A. Stewart, The Texas Co., Denver. R. B. Curran, Carter Oil Co., Billings, is chairman of the advisory committee

Unit Plans Summarized

In his paper, "Unit Operations," Cullen gave a brief summary of the larger oil-field units in successful operation in the area. The Salt Creek unit, one of the early plans adopted in the Rocky Mountains, was characterized as one of the most complicated to unitize. However, the results of unitization are apparent through increased recovery, arrest in the decline curve, and economics in operation, according to Cullen. He described the Lance Creek field and Elk Basin units as most successful and predicted that Rangely field will ultimately be unitized.

In a related paper, Nat A. Slagter, of the Lance Creek Unit Operators, spoke on "Secondary Recovery in the Rocky Mountain Region." Slagter predicted that gas-injection projects would be the most popular in the future in the Rocky Mountain region. Increases in oil recoveries of 50 to 100 per cent can be reasonably expected as the result of properly conducted operations of the gas-injection type, he added.

The importance of standardization of oil-field equipment was stressed by Jake L. Hamon, Dallas, vice president, A.P.I. Division of Production, in the opening address of the meeting. He told the group that 388 manufacturers in the United States and 13 foreign countries are saving the industry from $20,000,000 to $25,000,000 a year through the A.P.I. standardization program.

New A.P.I. Officers

H. A. Stewart, The Texas Co., Denver, was elected chairman of the Rocky Mountain A.P.I. district, and R. B. Curran, Carter Oil Co., Billings, was chosen chairman of the advisory committee. Other officers elected were: J. D. Anderson, Ohio Oil Co., Casper, vice chairman for Wyoming; R. D. Smith, Union Oil Co., Great Falls, vice chairman for Montana; M. R. McArthur, Husky Refining Co., Cody, vice chairman at large; and Zach Brinkerhoff, Brinkerhoff Drilling Co., Casper, secretary-treasurer.

Other members of the advisory committee are: James Donoghue, McKinnie Oil & Drilling Co., Denver; J. C. Johnson, Continental Oil Co., Denver; Val Kirk, independent operator, Frannie, Wyo.; R. L. Carruthers, The California Co., Denver; Claude Peavy, Wasatch Oil Refining Co., Salt Lake City; J. A. Deffeyes, Pacific Western Oil Co., Casper; William Flenneken, Fred Manning, Inc., Denver; Frank L. Lovering, Phillips Petroleum Co., Denver; D. T. Hoenshell, General Petroleum Co., Casper; and J. F. Cullen, Stanolind Oil & Gas Co., Casper.

R.M.O.G.A. Discussions

Hamon also delivered an address at the meeting on the R.M.O.G.A. which followed the A.P.I. session. In this talk, he declared that only a severe and prolonged business recession can halt the steady demand for more and more crude oil which the petroleum industry is experiencing. "The American people do not know enough about our important industry and in a great many cases what they think they know is misinformation," he added. "A public-relations program is vital to the welfare of this industry. Adapt it to your particular situation and your particular needs, but get your teeth into it and keep working at it."

Howard L. Volgenau, an official of Fred Eldean Organization, Inc., public-relations counsel for the petroleum industry, also discussed the industry's public-relations program before the R.M.O.G.A. directors.

In another talk before the Rocky Mountain association directors, C. E. Buchner, executive manager, Independent Association of America, said that "the proper function of an oil-trade association is to do everything within its power to see that its members have an equal opportunity, fair, and equitable treatment under federal and state laws, and to educate the public and legislative bodies as to the proper, right, and justifiable needs of its members."

Midwest Allocation Plans Announced

SOCONY-VACUUM OIL CO., INC., Shell Oil Co., Inc., and Phillips Petroleum Co. last week followed the action of Standard Oil Co. (Ind.) in announcing a plan for allocating supplies of gasoline to midwestern dealers.

Phillips announced the plan was introduced to "protect present distributors and dealers," predicting a greatly increased demand resulting from action of other companies in allocating supplies.

Shell's announcement said new construction will make the company able "to take care of any demand," but that in the meantime supplies will be distributed on the basis of 1946 deliveries.

Socony-Vacuum officials said the company's supplies would be distributed "equitably . . . to all customers" during July and August.

The original action of Standard Oil Co. (Ind.) was taken, company officials said, because current demand was running about 15 per cent above that of 1946 while supplies of gasoline were about the same. The situation is more acute in the Midwest, the company said, because of a rapid increase in farm consumption and independent transportation facilities.

Corpus Christi Plant Resumes Full Operation

NEW YORK.—Taylor Refining Co. was scheduled to resume full operation of its refinery at Corpus Christi July 1.

Neil Buckley, vice president, said the plant will process 30,000 bbl. daily of Gulf Coast crude and that the entire output has been contracted to Petroleum Heat & Power Co. of New York, which bought Taylor Refining last January, and to other outlets which have been maintained by the company. Much of the production is scheduled for export.

During the war one main unit was leased to the Government. It was released only recently.

WASHINGTON WATCHING

BY HENRY D. RALPH

Tanker Extension

WASHINGTON.—Authority of the Maritime Commission to operate tankers has been continued until March 1, 1948, without change so far as the law is concerned, but the House merchant marine committee announced it expected wide changes in the operation.

Legislation was rushed through Congress and signed by the President just before the June 30 deadline, thus preventing the commission from laying up approximately 260 tankers it has been operating in domestic and foreign trades under general-agency agreements.

The House committee said it approved the extension reluctantly since the commission has not taken sufficient steps to get the Government out of the shipping business and sell tankers to private operators. Under the 1946 Ship Sales Act the commission had until December 31, 1947, to sell surplus tankers, and this has now been extended until March 1, 1948.

The committee report said it expected the commission to reduce the tankers it operates to a maximum of 150 within 3 months, with a further reduction equal to the number of tankers sold for foreign registry subsequent to June 30. It also stated the expectation that the commission will make a substantial reduction in the rates for carrying petroleum.

These committee expectations are not legally binding but should have a strong persuasive effect on the commission.

Export Control Plans

A MUCH tighter administration of export controls, particularly as to steel and petroleum, is in prospect as a result of legislation on the verge of enactment.

Congress rushed through a 15-day extension of the present export control law a few hours before its expiration June 30 to bridge the gap while working out differences in House and Senate versions of a longer extension. This permits the Commerce Department to proceed with its previously announced plan to require licenses for export of petroleum products on and after June 30.

The House passed a brief bill extending export license authority to January 31, 1948, with an amendment specifically stating that it covers petroleum and petroleum products. Meanwhile, the Senate was debating a more elaborate measure, called the Second Decontrol Act of 1947, continuing export control and various other war powers until June 30, 1948, with several changes and limitations. This continues authority of the President to prohibit or curtail exports by license and also authority to allocate materials for export and issue priorities for production and shipment of goods for export.

The Senate bill would make mandatory exports of oil and steel where certified by state and commerce departments as necessary to fulfill our foreign policy or to increase foreign production of a commodity needed in the United States, while at the same time restricting other exports. Thus the administration could, for example, give priorities to export of oil to England but prohibit shipment to Russia, or allocate steel pipe to expand oil production in Venezuela or Arabia on the ground that more foreign oil production is needed to offset a domestic shortage.

The Senate bill establishes an administrator of export-import controls to enforce the law, sets up an interdepartmental committee to settle controversies over the needs of domestic industry as against foreign commitments, requires detailed public reports, suggests the use of industry advisory committees, and recommends various improvements in administration of export controls to meet criticisms of present procedures.

In reporting the bill the Senate judiciary committee revealed that if the law is enacted Commerce Department promises to reestablish immediately complete control over export of all pipe, both welded and seamless, requiring individual license for each shipment and providing control of end use and country of destination. It is also contemplated that the new administrator will review and revise the entire export program to tighten up on shipments now made on general licenses, country allocations, historical quotas, and licenses issued prior to obtaining bonafide orders.

OGD's Fund Prospects

THE Oil and Gas Division can continue to function in a limited but reasonably effective way if Congress votes it the funds carried in the Senate version of the Interior Department appropriation bill, in the opinion of Director Max Ball.

The House passed the bill with nothing for OGD except for administration of the Connally Hot Oil Act, but the Senate approved $155,390 for additional functions. The bill is still in conference and the final result will not be known until the end of the fiscal year, June 30. A special resolution permits the department to carry on until final determination.

Ball said that if the full Senate figure is allowed he believed the division would be able to retain a sufficient staff to do the minimum essential coordinating of government petroleum activities to carry out the objectives set when OGD was created. This will provide a nucleus for working with the industry and with other government agencies on the more important problems that arise. It should also permit a sufficient organization to justify continuance of the National Petroleum Council. Final details of OGD's budget and staff for the coming fiscal year should be known by the time of the next NPG meeting July 10.

Gas Act Compromise

THE House interstate commerce committee has been holding executive sessions almost daily in an attempt to agree on a revised draft of the Rizley natural-gas bill which will have reasonable prospects of early passage by Congress.

It was understood that by early this week the committee had agreed on language excluding jurisdiction over production and gathering substantially the same as the original Rizley bill and not as proposed by the Federal Power Commission, but eliminating the proposal to prevent FPC from exercising any jurisdiction over the end use of natural gas. The gas. The committee also agreed to drop administrative provisions requiring FPC to set certificate cases for immediate hearing and otherwise force quicker decisions, and to add a new provision requiring a natural-gas pipe line to give reasonably efficient service to all its distributors and communities served.

These and other less important amendments, the committee felt, would remove the major criticisms made by state regulatory bodies and the coal industry and pave the way for quick action by the House before the end of the session.

Meanwhile, the committee favorably reported the Schwabe bill to give a natural-gas pipe line power of eminent domain to condemn property for right-of-way.

Government Plans for "Tidelands" Administration Awaited

WASHINGTON.—A full week after the Supreme Court ruled that the federal Government owns the ocean bottom, the administration had not announced any plans for administration of its property.

Interior and Justice Department officials were still in a huddle over policies and procedures. Earlier it was understood that the day after a favorable Supreme Court decision the President would issue an executive order and send Congress a special message outlining further legislation needed, but neither was forthcoming.

Meanwhile many questions remained unanswered, such as whether the federal title dates from the court's decision, June 23, or the entry of the decree, set for September 15; whether the Government will confine its claim to California or extend it to all coastal states as the decision apparently permits; whether it will exercise jurisdiction over the entire sea bottom or only the oil deposits; what is the status of present oil producers and the royalties they have been paying states and cities; what questions can be settled by executive order, what by the court's decree, and what only by legislation.

California state officials were meeting with Justice Department officials this week to discuss stipulations covering such of these questions as might be included in the court decree.

Decision Held Threat to Property Rights

HOUSTON. — "Shocked almost to the point of speechlessness" is the best way to describe first reactions of several prominent Texas attornies here to the Supreme Court decision in the California "tidelands" case. The shock was due not so much to the nature of the decision but to the broad sweeping generalities on which it was based, and the seemingly almost casual brushing aside as insignificant of previous court decisions bearing on the subject.

The paragraphs which seemed most significant in the decision were: "The United States asserts rights in two capacities transcending those of a mere property owner. It asserts the right and responsibility to exercise whatever power and dominion are necessary to protect this country against dangers to the security and tranquillity of its people, incident to the fact that the United States is located immediately adjacent to the ocean.

"The Government also appears in its capacity as a member of the family of nations. In that capacity it is responsible for conducting United States relations with other nations. It asserts that proper exercise of these constitutional responsibilities requires that it have power, unencumbered by state commitments, always to determine what agreements will be made concerning the control and use of the marginal sea and the land under it.

Most attornies were unable to see how the necessity to defend the tidelands in event of war differed in anyway from the necessity to defend the coastal cities, or for that matter, how it differed from the responsibility of defending any part of the United States.

If the federal Government could claim property rights in the tidelands on the ground that it was responsible for their defence in time of war, then it could claim property rights anywhere on the same ground. One attorney pointed out that if this were a valid ground for a federal claim to property rights, then all property in the United States could be seized, save and except only those parcels to which title at some time had been specifically granted to another party by the federal Government.

Or, if the necessity of engaging with other nations with regard to commerce was a valid ground for the federal Government to claim property rights, there was no end to the chain of property rights that could be challenged and seized, it was argued.

Another opinion expressed dealt with the definition of sea or ocean. This attorney pointed out that in aviation circles, both military and civil, the concept of the air as an ocean or a sea surrounding the land vertically was already quite common.

There is still a possibility that a case involving the state of Texas may bring about different results. This arises because Texas existed as a sovereign nation prior to entering the Union, and came in as the result of a treaty instead of via the route traveled by other states. In the course of treaty negotiations, Texas offered to cede her public lands to the United States, if the latter would assume Texas' outstanding national debt. This offer was refused by Congress, and in the opinion of many lawyers, constitutes a definite disclaimer of title by the federal Government.

California Speculates on Decision's Effect

LOS ANGELES.—The federal Government's victory in the "tidelands" case continues to hold the attention of the California oil industry with much of the speculation centering on whether the Government will attempt to shut down the offshore wells to hold the oil "in reserve."

If the wells were closed in, it was pointed out the oils would be drained by the upland wells and condemnation proceedings would be necessary to close down the entire field.

California's attorney general, the state director of public lands, and the director of finance were on their way to Washington early this week to confer with federal officials and determine the practical effect of the Supreme Court's decision.

State-owned leases apparently affected by the decision consist of approximately 2,000 acres of tidal and submerged lands in Huntington Beach, Rincon, and Elwood fields. Production from these leases is about 33,000 bbl. daily. Leases in Wilmington are owned by the cities of Los Angeles and Long Beach under a state grant of many years ago. It was estimated the city of Long Beach alone has 40,000 bbl. daily of production which may be affected by the decision.

Improved Recovery Methods Are Urged

FRENCH LICK, Ind.—R. M. Haskell, president of Felmont Corp. of New York, told members attending the meeting of the Kentucky Oil and Gas Association here that new oil fields should be put under the care of secondary-recovery engineers "first instead of last."

Secondary-recovery methods, if instituted at the beginning as primary recovery methods, he said, would provide producers 40 to 50 per cent more recovery and larger profits.

In another address, L. Dan Jones, Washington attorney for the Independent Petroleum Association of America, told members they should direct their interest to the Natural Gas Act. The Government, he said, has interpreted the act to include production and gathering of gas in the field and is encroaching on states' control.

PERSONALS

Fraser Takes Shell Union Presidency

ALEXANDER FRASER, who steps up this week to the presidency of Shell Union Oil Corp., is a 58-year-old native of Scotland who joined the Shell organization shortly after the close of the first World War.

His elevation to head of Shell Union comes after 8 years' service as president of Shell Oil Co., Inc., a Shell Union affiliate. He succeeds R. G. A. van der Woude, president and director, who is retiring after 40 years with the Shell organization. H. S. M. Burns, formerly executive vice president of Shell Oil, takes Fraser's position as Shell Oil president.

Fraser was associated with Trinidad Lake Asphalt Co. from 1910 to 1914 and with Barber Asphalt Co. from 1914 to 1917 prior to joining Shell. During the first war, he was secretary of the Inter-Allied Petroleum Council. With Shell, he held executive positions of increasing responsibility until in 1933 he became president of Shell Petroleum Corp. with headquarters in St. Louis.

In 1939, when Shell's operations throughout the United States were combined into a single operating company, he became president of Shell Oil Co., Inc.

Among officials of Standard Oil Co. (N. J.) who are attending the company's first postwar coordination committee meeting in Paris are: **R. T. Haslam,** vice president and director; **Stewart Colman,** director; **Chester F. Smith,** vice president and director; and **Howard Page,** head of the company's coordination and economics department. Smith is chairman of the coordination committee.

Floyd E. Warterfield, president, Oklahoma Engineering Co., returned this week from Paris, France, on the S. S. America after a study of French products pipe-line projects.

W. A. Hampton, Humble Oil & Refining Co., has been named superintendant of the company's district office, reopened in Mexia, Tex. He will be in charge of maintenance of oil lines, and terminals at Waco and Dallas.

H. Smith Clark, formerly with Sinclair-Prairie Oil Co., has become a geology and engineering consultant with offices in Fort Worth.

A. D. Fox, former University of Oklahoma petroleum engineering instructor, has joined Sun Oil Co. and is stationed at Evansville, Ind.

William Wrath, formerly geologist for British American Oil Producing Co. in Los Angeles, has become assistant to **Ross Nichols,** general superintendent and geologist, Bolsa Chica Oil Co., in California.

Bert G. Aldridge, formerly refining engineer for Union Oil Co. and later assistant chief engineer, Fluor Corp., Ltd., has joined the engineering division of Bechtel Corp. in Los Angeles.

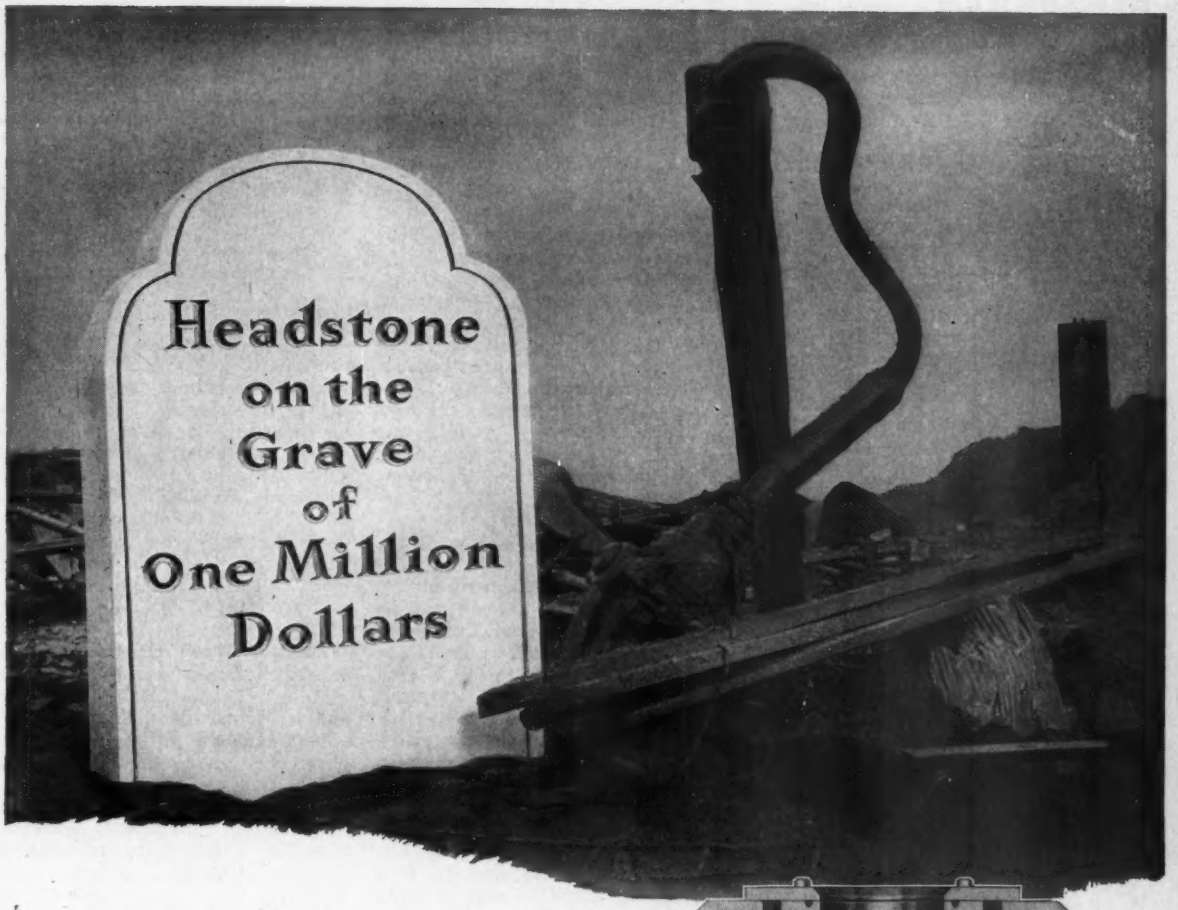
E. O. Beckwith, formerly manager of the product-supply division of Phillips Petroleum Co., chemical-products department, has joined Anchor Petroleum Co. in Tulsa as manager of Anchor's L.P.G. procurement division. The appointment was effective July 1. Beckwith had been associated with Phillips since 1933.

P. C. Musgrove, formerly district production superintendent in Kansas for Sohio Petroleum Co., has formed Musgrove Petroleum Corp. with offices in Wichita.

Dr. Gustav Egloff, of Universal Oil Products Co., was elected president of the Chicago Technical Societies Council at a dinner meeting June 24. The council is a federation of 50 scientific, technological and engineering societies of the Chicago area.

Tulsa Chapter of The NOMADS
OIL MENS COURTESY TICKET ADMIT ONE
Silver Anniversary
INTERNATIONAL PETROLEUM EXPOSITION
Tulsa, Okla., U.S.A. May 15-22, 1948
No. 1

Last week in a brief ceremony in Tulsa, Dr. Sylvio Froes Abreu, chief of the Division of Chemicals and Minerals of the Brazil National Institute of Technology, was presented the first ticket for the Silver Anniversary of the International Petroleum Exposition to be held in Tulsa May 15-22, 1948. The presentation was part of the planned program of the Nomads to increase international participation in the exposition. Abreu will extend an invitation to the show to other Brazilian Government representatives upon his return to Brazil. He is well known for his work in connection with the discovery of the first oil field in the Bahia Basin in 1939. Shown in the picture are: H. M. Cosgrove, executive secretary, Nomads board of regents; Abreu; William B. Way, general manager, and W. B. Skelly, president, International Petroleum Exposition; Shep Miers, national regent; Mark D. Gilbert, executive committeeman, and Stanley W. Wilcox, president, Tulsa Nomads



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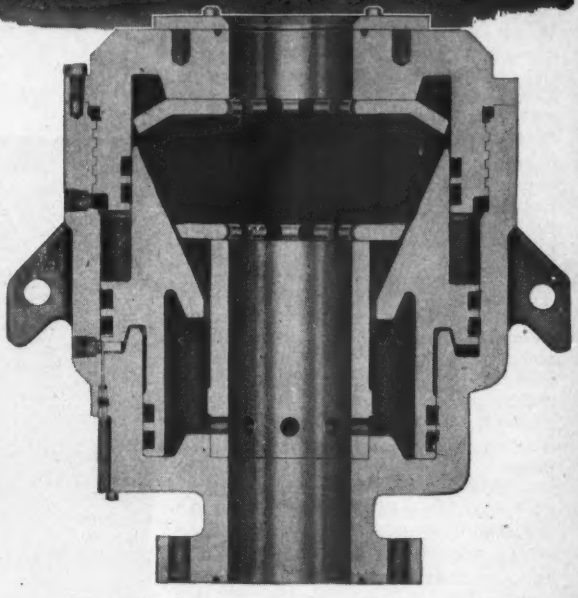


HYDRIL "GK"—THE MOST REMARKABLE BLOWOUT PREVENTER EVER DEVELOPED!

PERSONALS

S. Z. Natcher has been named assistant to **Floyd Bryant,** vice president, Standard Oil Co, of California.

T. P. SIMPSON

Thomas P. Simpson, former assistant director of Socony - Vacuum Oil Co., Inc.'s Research and Development Laboratories, has been named laboratories director. **Arlie A. O'Kelly** becomes associate director in charge of the chemical division; **G. H. S. Snyder** has been named assistant director in charge of the lubricating-oil division; **Louis P. Evans** advances to supervisor of the process-development division; and **John W. Payne** was promoted to associate supervisor.

Burton C. Dunn and **M. J. Boreing** have formed a partnership as consulting geologists with offices at Durango, Colo.

Henry F. Forbes is the new division petroleum engineer for Continental Oil Co. in Midland, Tex., succeeding **S. V. McCollum** who has been promoted to regional petroleum engineer in Fort Worth.

Stanolind Oil & Gas Co.'s Fort Worth office has announced the following promotions and transfers in its engineering department: **R. A. Evans,** Odessa, Tex., apprentice engineer to junior petroleum engineer; **C. O. Basenburg,** Odessa, apprentice engineer to junior petroleum engineer; **M. S. Legg** and **J. L. Cox,** Hobbs, N. M., apprentice engineers to junior petroleum engineers; **D. D. Engle,** Wink, Tex., roustabout to junior petroleum engineer; **B. R. Luscomb,** Wink, apprentice engineer to junior petroleum engineer; **F. H. Clements,** Andrews, Tex., apprentice engineer to junior petroleum engineer; **Z. F. Mitchell,** East Texas area roustabout to junior petroleum engineer; **A. V. Poss,** Brownfield, Tex., roustabout to junior petroleum engineer.

C. D. Forgerson, Odessa, roustabout to junior petroleum engineer; **J. B. Jenkins,** petroleum engineer, transferred from Fort Worth to Lubbock, Tex., as district engineer in the Panhandle-New Mexico district; **C. E. Jennings,** and **P. G. Burnett,** East Texas, apprentice engineers to junior petroleum engineers; **C. W. Jones,** Brownfield, roustabout to junior petroleum engineer; **L. W. Thompson, A. J. Kunkel, J. R. Feeser,** all of Brownfield, apprentice engineers to junior petroleum engineers; **W. H. Mills** and **B. J. Hinson,** Pampa, roustabouts to junior petroleum engineers; **R. W. Feagan,** Brownfield, junior engineer to junior petroleum engineer; and **L. L. Wooten, Jr.,** Andrews, junior engineer to petroleum engineer.

Roland V. Rodman has resigned as president of Bay Petroleum Co., Denver, to accept the presidency of Anderson-Prichard Oil Corp., Oklahoma City. **L. H. Prichard,** president of Anderson-Prichard since its formation in 1922, was elected chairman of the board by the company's directors at a meeting in Chicago. Rodman is scheduled to assume his new duties in Oklahoma City late this week. He had been with Bay since 1937 and president since September 1946.

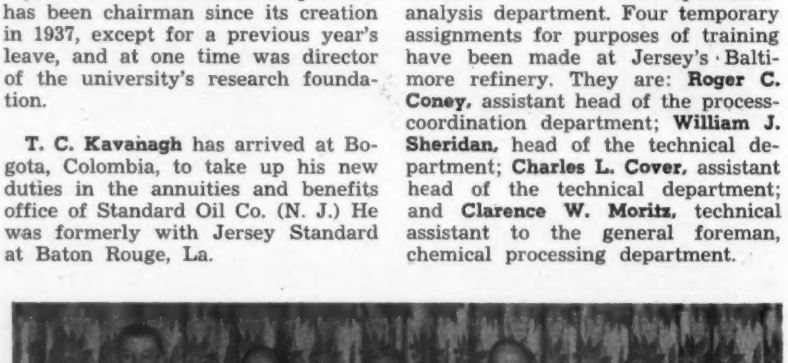
Rex W. Woods has been named professor of petroleum engineering and chairman of that department at the University of Kansas, effective September 1, to succeed **Prof. Eugene A. Stephenson,** who has resigned as chairman because of ill health to take a year's leave of absence. Stephenson has been chairman since its creation in 1937, except for a previous year's leave, and at one time was director of the university's research foundation.

T. C. Kavanagh has arrived at Bogota, Colombia, to take up his new duties in the annuities and benefits office of Standard Oil Co. (N. J.) He was formerly with Jersey Standard at Baton Rouge, La.

Jaime Toro Gomez has been appointed oil inspector in the Barco concession for Colombian Petroleum Co.

H. Quijano-Navas, formerly a petroleum engineer with Cia. de Petroleo de Shell de Colombia, is now oil inspector for Tropical Oil Co. at El Centro and Barranca, and is in charge at Yondo.

John B. Hanna has been appointed coordinator of projects at the Bayway (N. J.) refinery of Standard Oil Co. of New Jersey. **Francis J. Powers** succeeds Hanna as technical assistant to **Daniel L. Hussey,** process superintendent. In the same refinery, **Charles R. Haag** has been selected assistant head of operations-analysis department, and promotions to supervisor status have been given to **Daniel T. Gregg, Franklin M. Spooner,** and **Gordon A. Walpole.** At Jersey Standard's Bayonne (N. J.) refinery, **William O. Welch** has been promoted to shift foreman and **B. C. Ryan** to assistant head of the operations-analysis department. Four temporary assignments for purposes of training have been made at Jersey's Baltimore refinery. They are: **Roger C. Coney,** assistant head of the process-coordination department; **William J. Sheridan,** head of the technical department; **Charles L. Cover,** assistant head of the technical department; and **Clarence W. Moritz,** technical assistant to the general foreman, chemical processing department.



Three hundred years of service are represented by these 10 men who recently were awarded General Petroleum Corp. 30-year pins by President S. J. Dickey in a ceremony at the company's home office in Los Angeles. Standing are: W. M. McElroy, manager of refineries; W. L. Grantham, plant superintendent, pipe-line department; J. H. Middleton, transportation department; P. C. Brown, transportation department, and F. F. Vaughan, assistant manager of aviation sales. Seated: Harry Leadlay, pipe-line department; H. A. Mason, assistant manager, laboratories department; K. E. Sweet, comptroller's department; E. E. Boudinot, construction engineer, and T. J. McDermott, refining department

W. H. Morrison, who has been acting production manager, Tulsa, area, Shell Oil Co., for the past 5 years,

W. H. MORRISON

W. H. BURKE

has been assigned to a new position as special assistant to the Tulsa area manager. **W. H. Burke** succeeds Morrison as production manager of the Tulsa area. Burke joined Shell in 1933 after graduating from Stanford University and filled various assignments in field offices before being transferred to Tulsa as chief exploitation engineer in November 1945.

Roberto H. Wills has joined Colombia's Ministry of Petroleum as a petroleum engineer.

J. D. Exner, Humble Oil & Refining Co., has been promoted to assistant division superintendent at Wichita Falls, Tex., **F. E. Meleen,** his former assistant, succeeds him as Avoca district superintendent. **Joe F. Homer,** former Avoca district petroleum engineer, has been transferred to the New Orleans division office and **A. H. Ilfrey, Pampa,** has taken his place. **Frank Jewell** has been transferred from the Wichita Falls office to the Avoca district as district clerk.

Dr. Gustav Egloff, Universal Oil Products Co., was elected vice president of the Western Society of Engineers at the society's 78th annual meeting. Egloff is spending the month of July in Europe delivering technical papers before various organizations.

Shifts

Henry M. Kilian, geologist, Western Gulf Oil Co., Bakersfield to Pasadena, Calif.; **Byron B. Norris,** engineer, Los Angeles to South Pasadena; **George W. Griffin,** foreman, Southern California Gas Co., Los Angeles to Venice, Calif.; **Paul M. Rice,** engineer, The Texas Co., Alice to Teague, Tex.

Herbert F. Poyner, Jr., engineer, Shell Oil Co., Inc., Austin to Houston; **John L. Pike,** engineer, Gulf Oil Corp., Crane to Kermit, Tex.; **L. K. King,** foreman, Continental Oil Co., Gainesville to Sonora, Tex.; **John M. Sweeney,** foreman, Sun Oil Co., Gainesville, Tex., to Brookhaven, Miss.; **William Horblit,** engineer, Humble Oil & Refining Co., Goose Creek, Tex., to Denver; **William R. Goodier,** engineer, Shell Oil Co., Inc., Graham to Wichita Falls, Tex.

E. W. Gaudet, engineer, Pan American Production Co., Houston to Dickinson, Tex.; **Rex M. Smith,** geologist, Humble Oil & Refining Co., Houston to Fort Myers, Fla.; **Elmer T. Ireton,** engineer, Stanolind Oil & Gas Co., Iraan to Fort Worth; **Winford A. Neill,** engineer, Sun Oil Co., Kilgore to Austin; **J. F. Hodge,** engineer, Celanese Corp. of America, Kingsville, Tex., to Pittsburgh, Kans.

W. A. Thomas, geologist, Ohio Oil Co., Midland, Tex., to Houston; **John P. Strong,** engineer, Atlantic Refining Co., Odessa to Dallas; **Frederick L. Convers,** engineer, Stanolind Oil & Gas Co., Wink to Andrews, Tex..; **James L. Reedy,** engineer, Barnsdall Oil Co., Jennings to Shreveport, La.; **L. G. Pope,** geologist, Carter Oil Co., Mattoon, Ill., to Tulsa.

Katherine W. Carman, geologist, Evansville to Newburgh, Ind.; **Andrew L. Gaboriault,** engineer, Socony-Vacuum Oil Co., Inc., Woodbury to Paulsboro, N. J.; **M. F. Bailey,** foreman, Sinclair Refining Co., pipeline department, Toronto, Ohio, to Luling, Tex.; **P. C. Musgrove,** superintendent, Sohio Petroleum Co., Russell to Wichita, Kans.; **E. C. Smith,** engineer, Associated Refining, Inc., Cement, Okla., to Augusta, Ga.; **N. Bruce Calder,** engineer, Magnolia Petroleum Co., Pauls Valley to Chickasha, Okla.; **H. R. McCurdy,** geologist, Stanolind Oil & Gas Co., Woodward to Oklahoma City.

Vernon T. McGhee, engineer, Phillips Petroleum Co., Bartlesville, Okla., to Alvin, Tex.; **O. W. McGinty,** engineer, Great Lakes Pipe Line Co., Cushing to Ponca City, Okla.; **W. S. Wingrove,** superintendent, Danciger Oil & Refining Co., Shawnee, Okla., to Gladewater, Tex.; **L. C. Crowe,** superintendent, Jackson Drilling Corp., Tulsa, to Wichita; **Maloy Stevenson,** engineer, Refining Engineering Co., Tulsa to Arkansas City, Kans.; **H. M. Houghton,** geologist, Amerada Petroleum Corp., Tulsa to Alva, Okla.; **William P. Rawles,** geologist, New York to Seaid Valley, Calif.

DEATHS

James E. Duffey, 84, pioneer Oklahoma oil operator and one of the founders of Western Supply Co., died June 28 in Tulsa. Duffey moved to Oklahoma before statehood and was one of the discoverers of a large oil pool near Cleveland, Okla.

John D. Fralic, 46, independent Kansas operator, was found dead near Wichita, Kans., June 29.

Lewis M. Morehead, 81, who entered the oil business in Shreveport in 1908, died in a hospital there June 26. One of the early operators in the old Caddo field, Morehead later operated a refinery at Greenville, Tex.

Bill McSpadden, 67, independent oil operator, died June 27 in an Amarillo, Tex., hospital.

Harvey D. Miller, 52, oil-equipment broker, died June 30 at his home in Tulsa.

Edward Michener, 80, founder of Commonwealth Petroleums, Ltd., which has been active in Alberta development for the past 20 years, died recently in Ottawa.

James C. Graves, 75, pioneer Michigan oil man, died June 27 at his home in Saginaw. He was instrumental in developing Saginaw field, Michigan's first big development in the nineteen twenties and in recent years was an official of Bay Refining, Bay Pipe Line and Basin Oil companies. He was a past president of the Michigan Oil and Gas Association.

Walter L. Ruff, 59, independent oil man, died June 22 in a hospital at Victoria, Tex.

Ceylon E. Gates, 59, well-known lease man, died June 22 in Houston. Gates at one time was associated with H. C. Cockburn, independent Houston operator.

Harold K. Seeley, official and gas engineer, Central New York Power Co., died June 18 in Port Allegany, Pa.

Donald A. Sillers, 52, president of the Peerless Manufacturing Co. and prominent in southwest petroleum affairs, died June 23 in Dallas. Sillers was well known in the industry for his work in developing methods of gas measurement by orifice metering. He was one of the organizers of the Southwestern Gas Measurement Short Course at the University of Oklahoma.

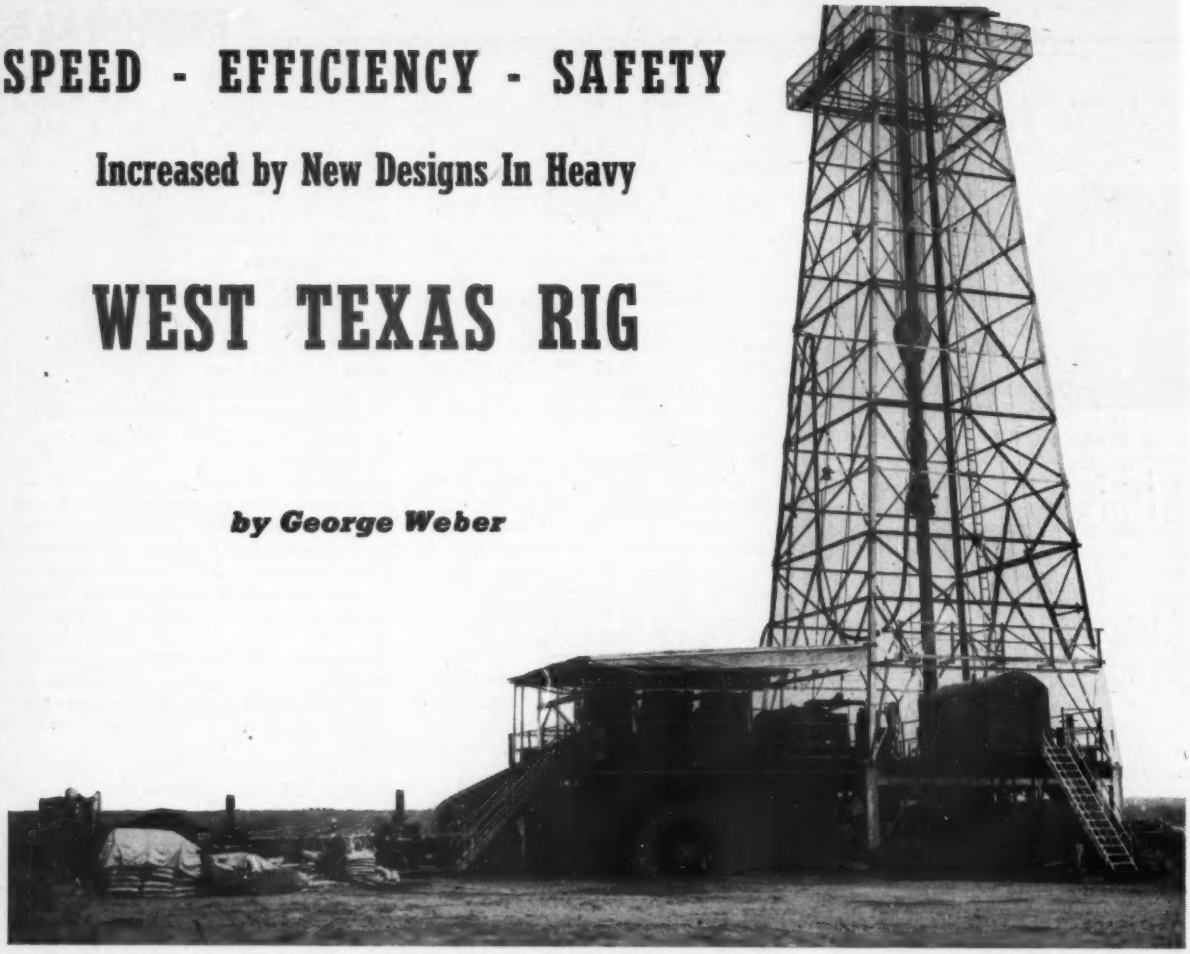
Roy A. DeSlatte, 35, senior draftsman, Shell Oil Co., Houston, died June 22 in Houston.

SPEED - EFFICIENCY - SAFETY

Increased by New Designs In Heavy

WEST TEXAS RIG

by George Weber



The new Carl B. King rig, classed among the heaviest in the Permian Basin, presents a trim, unitized appearance. The features added by the contractor are designed not so much for appearance as for greater efficiency. This Wheeler field location of the Stanolind Oil & Gas Co. is the initial well for the rig. Engineer and tool pusher estimate they can rig up completely in 36 hours

A NEW heavy rig recently placed in operation by Carl B. King Drilling Co. of Midland incorporates a number of innovations designed to improve drilling efficiency in the Permian Basin. The new features of the rig were suggested, designed, and installed by J. E. Warren, president; C. W. Murphy, drilling superintendent; B. R. Schabarum, engineer; and tool pushers and crews of the contracting company. The result represents an end product of the constant drive on the part of all personnel to improve efficiency, economy, speed, and safety on each successive drilling contract.

Three LRO Waukesha engines rated at 375 hp. each drive the National Type 100 draw works and one C 350, 7¾-by-18-in. mud pump through a National chain compound equipped with Fawick Airflex 24-by-5-in. clutches. A standby C 250 National 7¼-by-15-in. mud pump powered by a fourth Waukesha LRO engine is installed away from the rig for maintaining circulation in case of rig shut-down.

In the 136-ft. derrick are an Oil-well C-150, 150-ton swivel, a BJ 4200 hook, a National 76-in., 5-sheave traveling block, and a D-20 6-sheave, 200-ton crown block. The latest type of BJ tongs, a double 40-in. Parkersburg hydromatic brake and a National 27½-in. rotary table comprise the principal equipment on the derrick floor. Under the floor is installed a Cameron 10¾-in., 6,000-psi. test type DV pressure-operated gate valve, topped by a Cameron spool and a Cameron QRC blowout preventer equipped with 4-in. rams.

Rigging Time Cut

To this modern rig the contractor has added newly designed functional features which will materially reduce upkeep and rigging time, and promote safety through improved working conditions for the drilling crews. The engine unit is of particular interest. The substructure comprises two 325-bbl. water tanks which, filled during drilling operations, give unusual stability to the engine floor. The tanks, divided axially, have water and gas lines built in and require only outside connections for installation. In the end of the tank on the driller's side is a built-in work bench backed by a caustic gas treating unit. This allows the rig to sweeten and use sour field gas which generally is available in West Texas.

Unitized engine and draw works foundations rest directly on supports welded into the steel tanks. Floor sections, hinged to engines and draw works, have been elevated to a height flush with the derrick floor. The overhanging walkways which let down on each side of the engine-compound unit are hinged to the substructure and are supported by heavy diagonal braces which slip over studs welded into the tank walls. In transit these walkways are folded down to the tank sides and each substructure unit forms a load measuring 32 by 10 by 8 ft. Rail posts and roof supports are set into fabricated sockets around the floor's edge. Guard rail posts are drilled for rapid stringing of 1-in. rails.

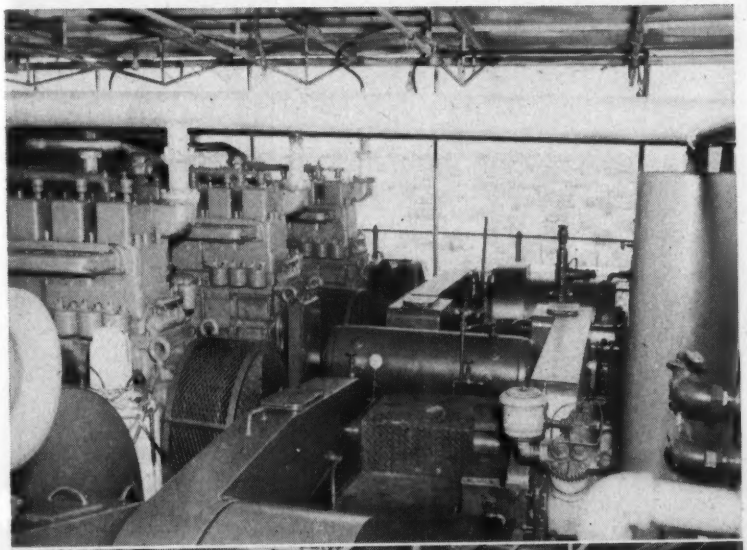
The roof also was self-designed and

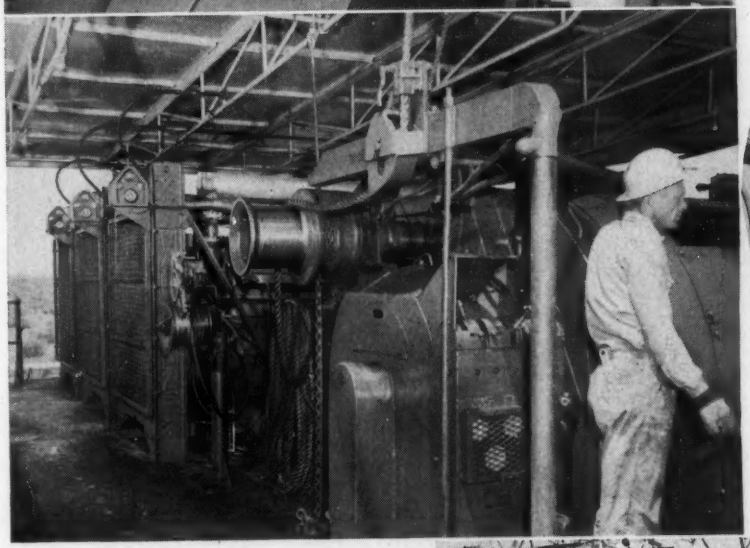
built to order. The framework is composed of 1¼-in. pipe trusses with 1-in. cross members, topped with 2½-in. tubing. The painted 16-gage sheet-iron roof panels, roughly 5 by 9 ft., are welded to angle-iron frames. These panels overlap down pitch, and where they join over the trusses their edges are inserted into slots cut in the tubing, giving complete overhead weather protection. Piping installed in the roof members provides water through flexible hoses to engine radiators and exhausts. Sprays are turned into the exhausts when fire precaution is in order. When rigging up, only one hose connection is required between the substructure tanks and the draw works. Water from water-cooled brakes and the hydromatic brake is returned to the tanks through a built-in rundown line.

Unitized pipe racks were fabricated to specifications by Roy Sparks, contracting welder of Andrews. Six 24-ft. sections flank the walkway—four sections and a 10-ft. gate section on the driller's side, and the remaining two racks, opposite. To avoid the need for blocking in rough terrain, the telescoped legs are drilled for pinning to three different heights. The 4-in. horizontal members, trussed with 3-in. pipe, are joined by a simple hook and slot at the top and slot and stud at the base. The 5 by 60-ft. walkway with a bolted floor of 3 by 12-in. planks breaks down into two sections, and when inverted acts as a carrier for the pipe racks.

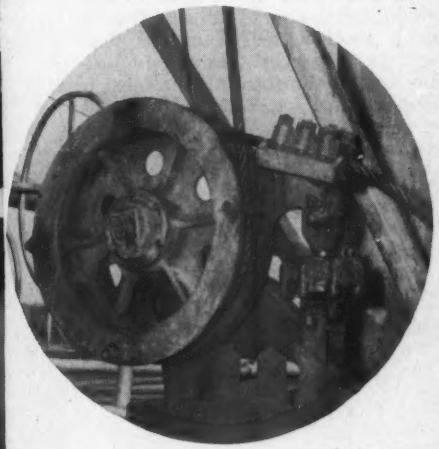
Two-Story Dog House

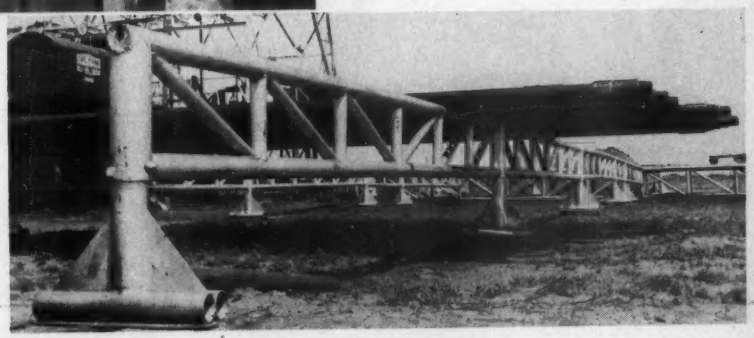
Two dog houses at the rig are mounted as one unit. The lower, which forms the substructure for the



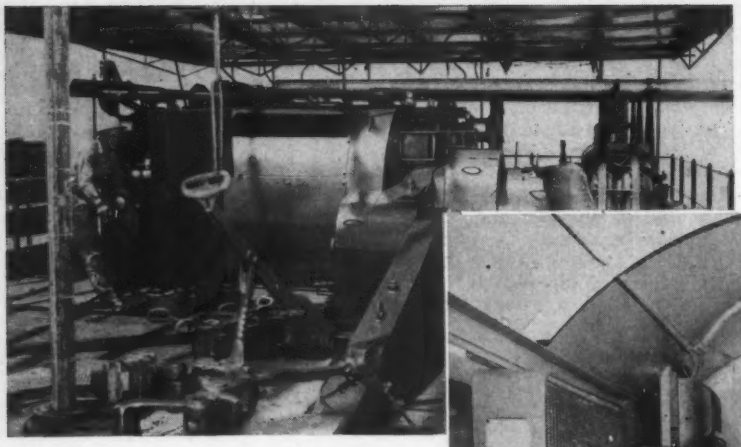


Left: Controls for the three airflex clutches are located at the near clutch drive. At the right is the air compressor and the control tank for the hydromatic brake. The white service-station type Alemite unit visible in the left foreground holds 100 lb. of grease. It operates on air pressure and by means of the 25-ft. high-pressure hose will reach all lubrication points on the rig. Below: Torque created by tension in the deadline actuates the piston in this tie-down. The piston's pressure in the chamber is transmitted by a high-pressure hose to the Martin Decker weight indicator on the derrick floor

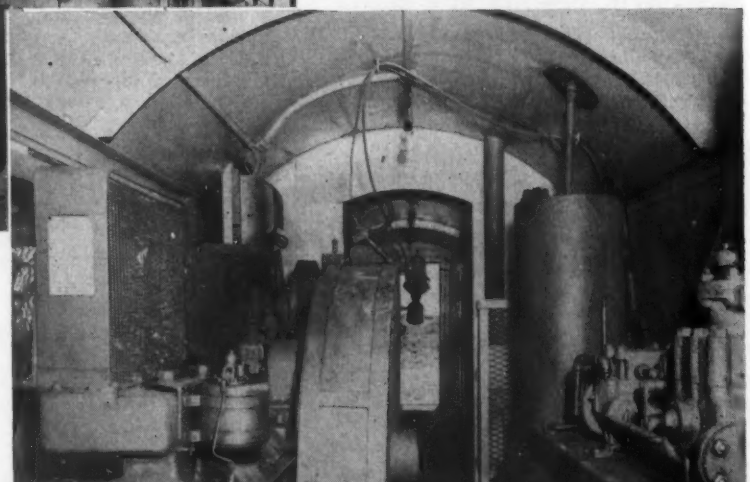




Above: Air-actuated controls and instruments are centralized at the driller's position. Duplicate sets of pump controls are installed at pumps and derrick floor. Unitized roof sections include water lines to radiators and spray lines to engine exhausts for use when drilling oil or gas formations. Right: This locally fabricated pipe rack can be rapidly assembled and knocked down. Made of 3, 4 and 6-in. pipe, one 24-ft. section was recently tested with 15 8-in. and 22 6¼-in. drill collars, a load of about 122,000 lb. Leg length is adjustable

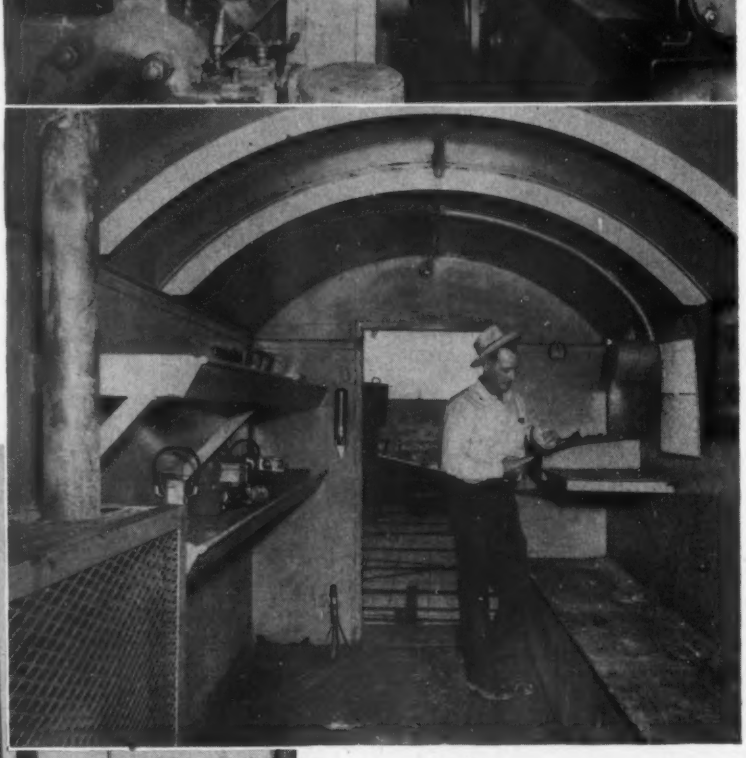


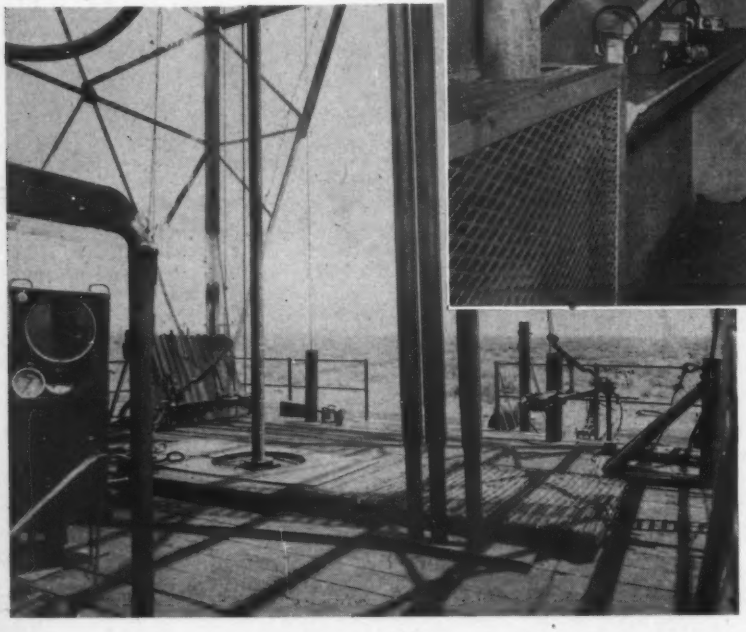
Left: Instrument panels on each engine are mounted facing the driller, allowing him to check r.p.m. vacuum, temperature and oil pressure without leaving his position. Contractor plans to install a tachometer to record bit revolutions. Below: This dog house, 200 ft. from the rig, houses crews' lockers and the electrical generator



upper house and walkways, is used for storage of parts and supplies. A third dog house located 200 ft. from the rig is equipped with 15 6-ft. lockers for the crews. In one end is installed a 20-hp. Fairbanks Morse engine driving a 10-kw. Century d.c. generator. The engine also drives a 20-cu. ft. air compressor which, in turn, provides compressed air to power a Gardner-Denver oil pump. The latter unit, equipped with a manual booster, provides diesel oil at high pressure for operation of blowout preventers.

Operators plan to continue to add new improvements to the rig. Next in line is another steel house for storing mud. A new lighting system, possibly of the fluorescent type, also is planned. The ease of assembly of this rig is expected to pay dividends by greatly reducing down time between contracts. It is anticipated that rigging up will require only a day and a half.





Above: The upper dog house. The zig-zag heater is welded to the wall and roof to prevent entry of fumes into the house. Left: With a knob at the base of the dial, the driller zeros the weight indicator just before he sets on bottom, thus getting weight readings on the bit directly. Note the wells for tong weights and the two back-up posts. From rotary table to derrick floor is a 6-in. step. Flush with the rotary is a nonskid pipe bed made by nailing alternating lengths of manila rope and wire rope to the wooden bed

Pressure-Maintenance Project Sets Pattern For Future Programs of Its Kind

by E. H. Short, Jr.

A RECENTLY completed pressure-maintenance project in Coleman County, Texas, near the town of Novice, may set a pattern for future programs of its kind in the many areas where the problem of gas conservation and pressure maintenance involves a relatively small group of wells.

This pressure-maintenance project is the property of Sohio Petroleum Co. (Standard Oil Co. of Ohio) and is operated by Hunter & Hunter, of Abilene, Tex., (owners of a carried interest) under the direction of the Mid-Continent office of Sohio Petroleum at Oklahoma City.

Located in Williams pool, the unit area (Fig. 1) involves 15 producing wells and 3 injection wells. These wells were completed in the 3,750-ft. Gray sand during 1944, and at the present time are producing approximately 400 bbl. a day by natural flow. Production is handled through central separators and a tank battery located adjacent to the plant. Wellhead pressures are approximately 100 psi., and separator pressures run around 40 psi.

Compressed gas is furnished for the project by one 500 hp. three-stage compressor; however, the layout design of the compressor plant provides for the installation of another unit when necessary. Operation of the present unit is with an intake pressure of 10 psi., and approximately 2,000,000 cu. ft. of gas a day is delivered to the intake wells at a discharge pressure of 1,000 psi. Operating fuel gas for the compressor and generator engine is furnished by a high-pressure gas well. This well is also tied into the gas-intake system to the compressor and supplies makeup gas when the pressure in the system drops below 10 psi.

Incoming gas to the plant from the separator enters the inlet scrubber before going to the first stage of the compressor. The gas is intercooled between stages, except the final discharge to the injection wells at approximately 1,000 psi.

Products which condense in the two-stage scrubber are flashed back into the first-stage scrubber. Products from the first scrubber are flashed back into the inlet scrubber. Products from the inlet scrubber are flashed into a 5-psi. vent tank, and gas overhead from this tank supplies fuel for treater heaters located at the tank battery. Liquid products from the vent tank are pumped directly into storage. Fig. 2 is a flow chart which shows in detail the course the gas takes from the time it enters the plant until it is discharged to the injection wells.

All gas entering or leaving the plant is metered. Each line to the intake wells is equipped with a meter, and distribution of gas to the wells is controled by chokes on the downstream side of the meters.

Automatic Controls

While economics of operation are important to any type of plant, the cost of operation is of more than usual importance to the successful operation of a plant of this kind. In the design of this plant particular emphasis was placed on adequate installation of automatic controls as a means of insuring safe plant operation with a minimum amount of operating cost.

Each scrubber is equipped with a high-level liquid control. In event fluid rises above the design point in the scrubbers, the compressor is shut down by magnetic controls. On the final discharge line from the compressor there is a high-pressure cutout switch, so that in the event sand formation or the accumulation of hydrates in the lines cause a buildup in pressure to 1,250 psi. the compressor is automatically shut down. In the event the pressure should decline on the final discharge line to 800 psi., another cutout switch grounds out the engine.

Automatic controls are also provided to shut the unit down in event the temperature of the oil or water to the compressor reaches an excessive point.

The inclusion of these automatic features into the design of the pressure-maintenance plant permits the plant to be operated with only three men who look after leases, tank bat-

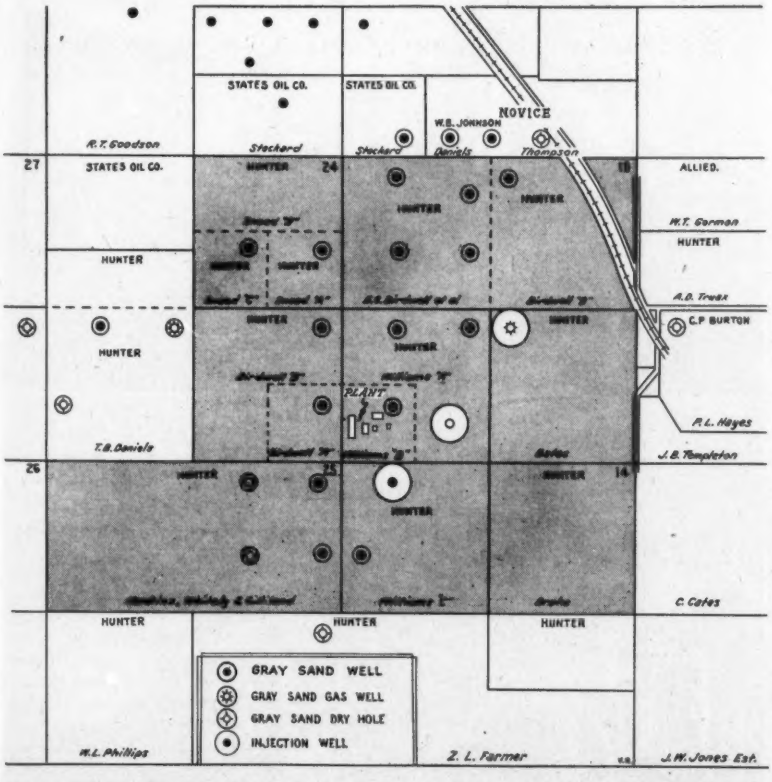


Fig. 1—Williams pool, showing location of Sohio Petroleum Co.'s pressure-maintenance plant

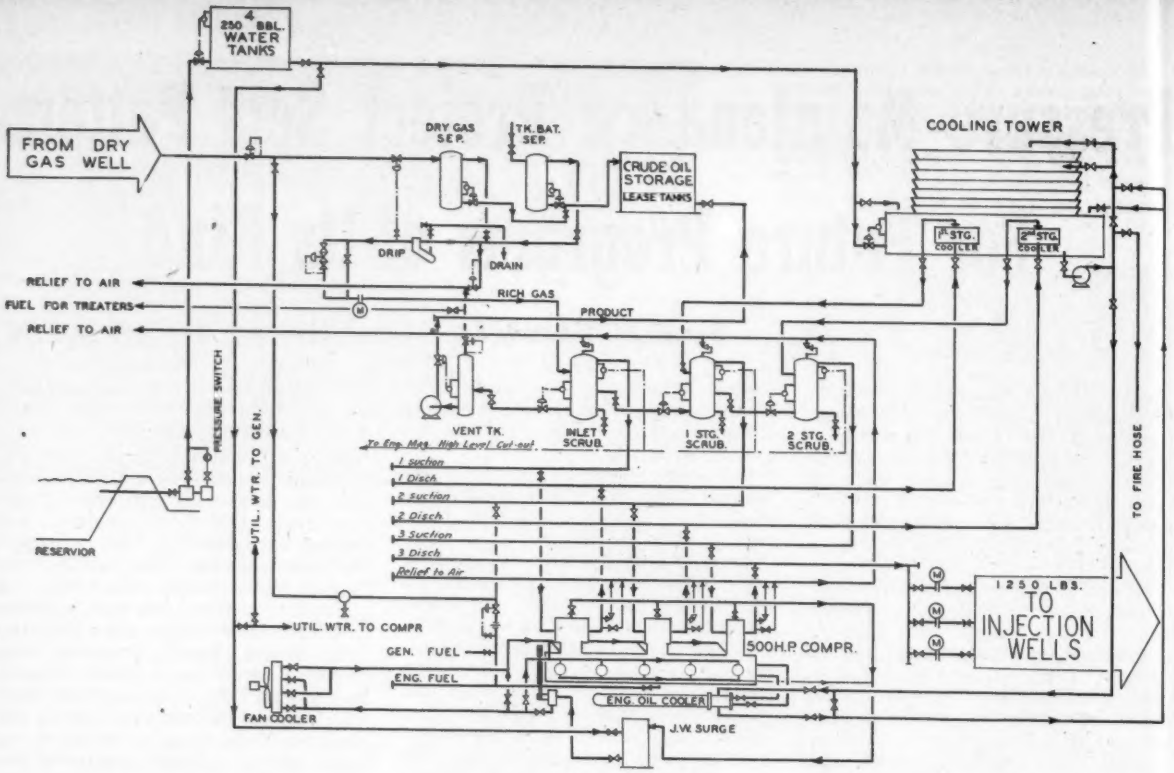


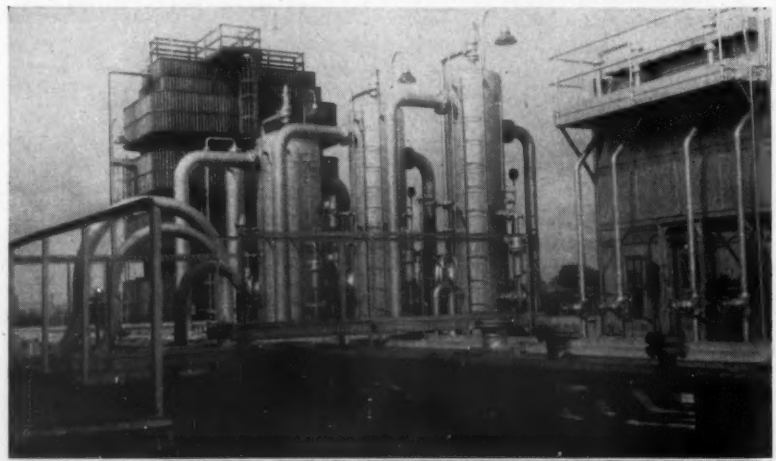
Fig. 2—(Above) Plant flow diagram. Fig. 3 (Right) Intake, first-stage and second-stage scrubbers. Fin-fan unit shown at extreme right. Use of this unit for cooling engine conserves water, since the force draft can maintain the required engine temperature. Fig. 4—(Bottom) The 500-hp. compressor. At extreme right is a view of control on variable stage clearance pocket on inlet side of compressor

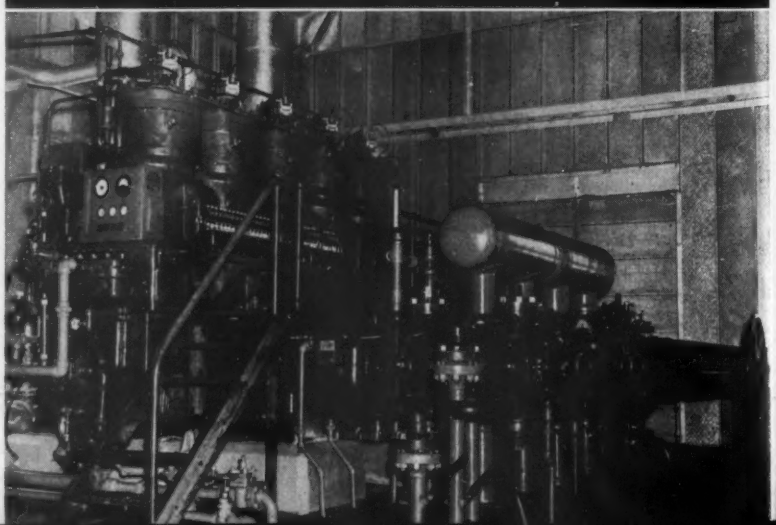
teries, and plant. After the 8-o'clock inspection of the plant in the evening, the plant operates without anyone in attendance until the next day. Another automatic feature which has not been mentioned is the alarm system. In case of any failure which automatically shuts down the plant, an alarm is sounded automatically in the plant yard.

Other items of equipment which go to make up this plant consist of a 40-hp. gas engine, a fin-fan cooling unit, motor equipment for driving cooling-tower pump, liquid-product pump, and a 15-hp. electric motor for driving the fin-fan unit. The 40-hp. gas engine furnishes power for a 50-kw. generator.

One of the most important problems to be considered and worked out in the design of this project for this particular field, was that of an adequate water supply. It was necessary to build a lake 3½ miles from the plant. A tank battery consisting of four 250-bbl. tanks was constructed approximately ½ mile from the plant. These tanks are kept full at all times (automatically) by means of a positive-type pump located at the lake. The starting or shutting down of the water pump is effected by means of liquid levels in the tanks. Water from this tank battery is conducted to the plant by gravity.

The design of the Williams pool presure-maintenance plant and the procurement of materials were handled by the engineering and purchasing departments of Sohio. Construction work was handled by O. L. Olsen, engineer-construction, of Houston.





Short-Wave Radio FACILITATES PIPE-LINE OPERATION

*by J. M. Bradley**

RADIO, as a means of communication, is rapidly gaining favor in the oil industry. With the introduction of frequency modulation in short-wave radio, static and interference found in amplitude modulation are eliminated. When applied to pipeline operations, particularly those in remote locations, the frequency-modulation radio has been very successful.

Interstate Oil Pipe Line Co. has set up stations in Wilson, Okla.; Sunset and Anse LaButte, La.; Cranfield and Fayette, Miss. These stations enable the office and field to keep in constant touch with each other, and facilitate the handling of business by eliminating delays which occur in wire transmission of messages. Usually, contact between office and field is most important during bad weather, and failures are most likely to occur in wire transmission at such time. The radio is not subject to those failures, and is proving itself more dependable daily.

*Assistant manager, northern division, Interstate Oil Pipe Line Co.

Pipe-line communication systems consist of telegraph, telephone, teletype and radio. Telegraph is the oldest and is still being used by most of the pipe-line companies. It is gradually giving way to the telephone, teletype, and the latest addition—radio. The principal reason for this change is the scarcity of skilled operators required by telegraph. Operation of the other types of communication does not require special training.

Two Types of Transmission

There are two types of radio transmission: amplitude modulation and frequency modulation. During the war the important principle of frequency modulation reached a rather high degree of development. The principle of frequency modulation is radically different from the older amplitude modulation in which the amplitude of the carrier wave is modulated by a superimposed audio-frequency wave, or any other frequency such as noise originating from static. Audio-frequency waves have the same vibration as the sound waves which produce them, and correspond in amplitude to the loudness or amplitude of the sound waves. The resulting carrier wave's amplitude varies under the influence of these superimposed waves.

In frequency modulation, the amplitude of the carrier frequency remains constant and the modulating audio frequency and its amplitude cause changes in the frequency of the carrier. In this type of transmission, the static noises are still superimposed upon the carrier, and affect its amplitude; but receivers discriminate only between frequencies and, therefore, are unaffected by the noises. This can better be illustrated by a graph (Fig. 1) representing both conditions.

Frequency modulation requires a wave band sufficiently wide to enable it to carry the range of audio waves, and still not interfere with other stations. For these reasons, it is usually assigned in the very high frequency range. As radio waves become shorter, a transition occurs in their

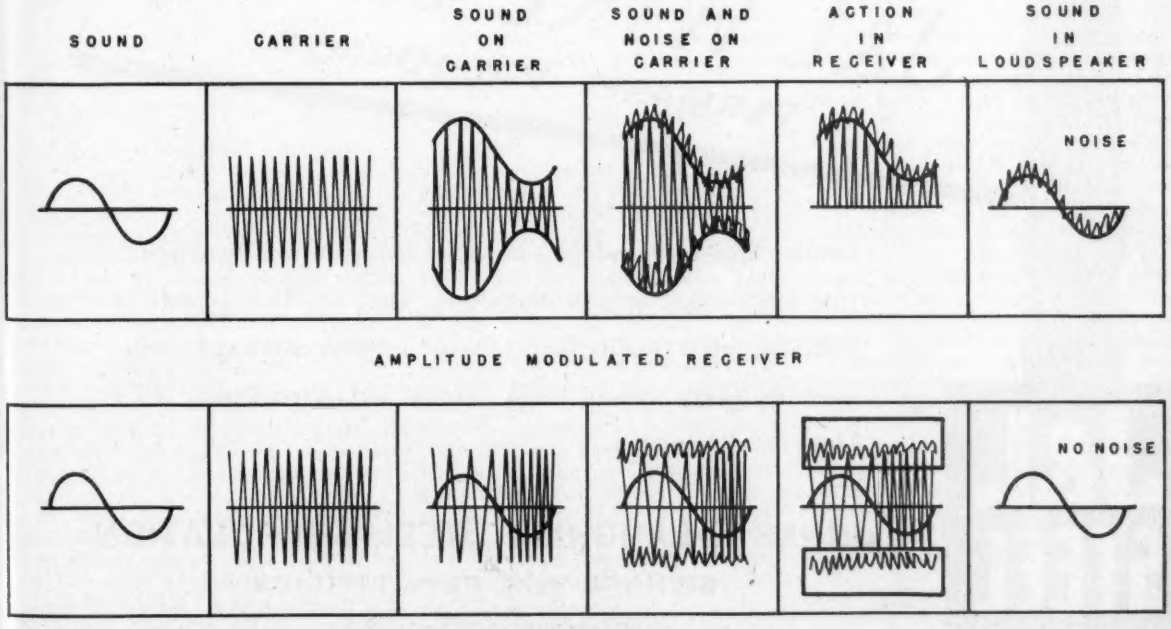


Fig. 1—Graphic illustration of difference between AM and FM carrier waves

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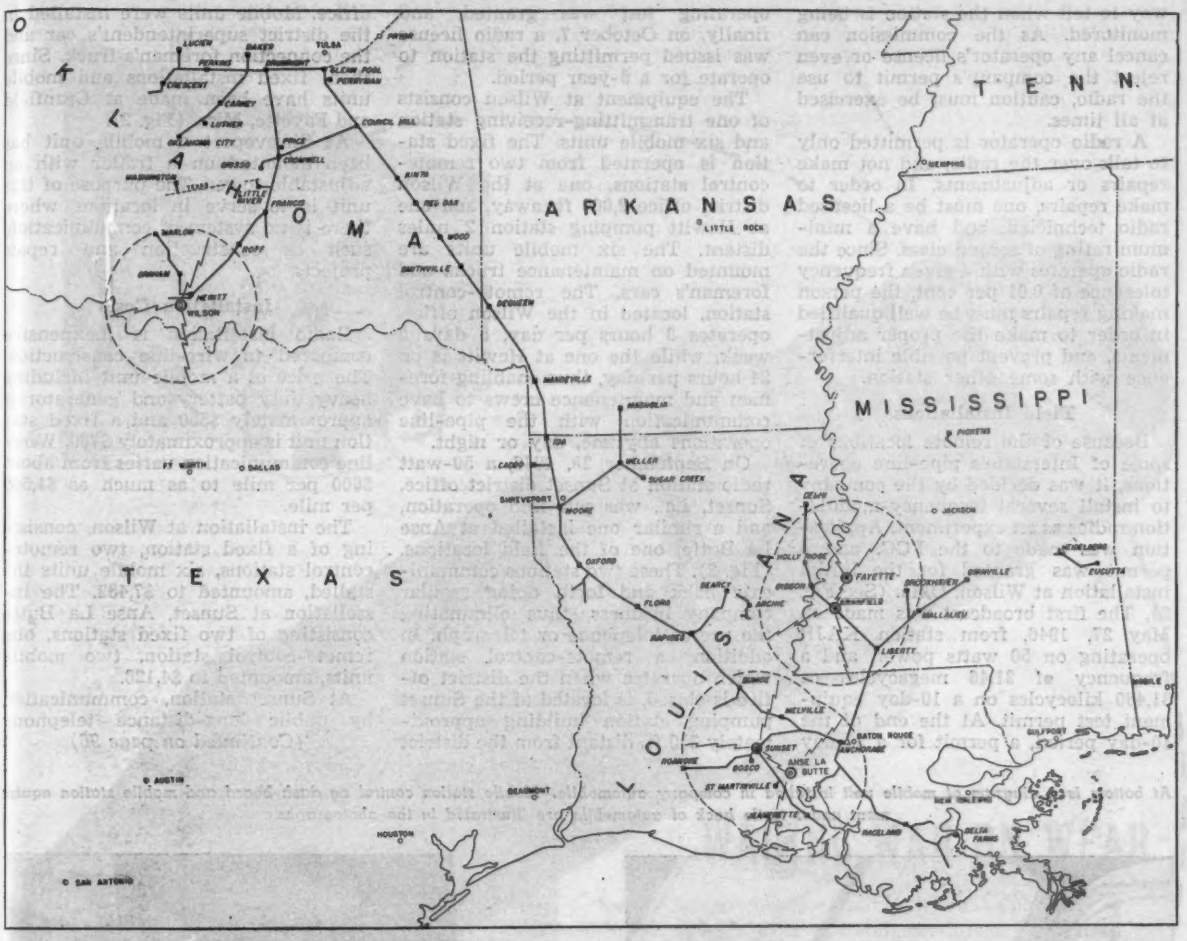


Fixed station locations for radio communication serving the Interstate Oil Pipe Line system

ability to travel around or over obstructions. Long radio waves, such as were used in early commercial broadcasts, are able to penetrate space behind buildings or hills. Radio waves in the very high frequency range, regardless of the mode of modulation, approach the characteristics of light in that obstacles in the line of sight form shadows.

The radio receiver located in the shadow is unable to receive the signal. These so-called shadows can be eliminated by repeater stations which consist of a radio receiver coupled to a transmitter by which arrangement, the signal is retransmitted. Without these repeater stations, reliable radio transmissions in the very high frequency range are limited to line of sight waves. Hills, trees, and buildings interfere, making the height and locations of an antenna an important item.

At times, signals are received from stations located many miles beyond the normal range. This is referred to as sky-wave propagation. A region about 80 to 120 miles above the earth's surface is called the ionosphere. Radio waves are reflected from this layer and may be received many miles beyond the normal line of sight. The range of the sky wave varies with the height of the ionosphere, which in turn, varies with the time of the day, season of the year, and various other conditions.

Operation Regulations

In 1927, the Federal Radio Commission was created with authority to grant license, fix wave lengths, and regulate hours of operation. This agency was succeeded in 1934 by the Federal Communications Commission. The latter has control over radio, wire telephony, and wire telegraphy. It has power to grant or revoke license, and change operating frequencies on transmitting equipment. Periodic tests are made to determine whether or not operations are in line with the government regulations.

Anyone who operates a fixed station must have a license from the Government. All persons who propose to use a radio station are furnished with a sheet of questions and answers to study. These questions deal mainly with rules and regulations for radio transmission.

There are several other regulations which particularly concern industries such as ours.

1. Operators of mobile units licensed in connection with a fixed station are not required to have a radio operator's license in order to use the set. However, since their work might frequently require them to use the fixed radio station, all Interstate Oil Pipe Line Co. pipe-line personnel concerned with the radio took the FPC's examination, passed it, and were granted a license.

2. A pipe-line company's permit to operate a radio system states that it will be used only for essential messages in connection with the transportation of oil by pipe lines. This means that operators are not to talk about the weather, fishing, hunting, or anything else unless it has to do with company business.

3. Profane language must not be used on the radio.

4. A log or record must be kept of each conversation showing the times transmission began and ended. All fixed stations keep logs and it is not necessary for the mobile units to log unless they talk to another mobile unit.

5. Stations are monitored by government monitors at different times to see if any rules are being violated. Rule violations might pass several times unnoticed; however, there is no

way to tell when the station is being monitored. As the commission can cancel any operator's license or even reject the company's permit to use the radio, caution must be exercised at all times.

A radio operator is permitted only to talk over the radio, and not make repairs or adjustments. In order to make repairs, one must be a licensed radio technician, and have a minimum rating of second class. Since the radio operates with a given frequency tolerance of 0.01 per cent, the person making repairs must be well qualified in order to make the proper adjustments, and prevent possible interference with some other station.

Field Installations

Because of the remote locations of some of Interstate's pipe-line operations, it was decided by the company to install several frequency-modulation radios as an experiment. Application was made to the FCC, and a permit was granted for the initial installation at Wilson, Okla. (See Fig. 2). The first broadcast was made on May 27, 1946, from station KAJR operating on 50 watts power, and a frequency of 31.46 megacycles or 31,460 kilocycles on a 10-day equipment test permit. At the end of the 10-day period, a permit for a 30-day operating test was granted, and finally, on October 7, a radio license was issued permitting the station to operate for a 5-year period.

The equipment at Wilson consists of one transmitting-receiving station and six mobile units. The fixed station is operated from two remote-control stations, one at the Wilson district office 2,000 ft. away, and one at Hewitt pumping station 2 miles distant. The six mobile units are mounted on maintenance trucks and foreman's cars. The remote-control station, located in the Wilson office, operates 8 hours per day, 5 days a week, while the one at Hewitt is on 24 hours per day, thus enabling foremen and maintenance crews to have communication with the pipe-line operations anytime, day or night.

On September 25, 1946, a 50-watt radio station at Sunset district office, Sunset, La., was put into operation, and a similar one installed at Anse La Butte, one of the field locations. (Fig. 2). These two stations communicate back and forth doing regular company business, thus eliminating the use of telephone or telegraph. In addition, a remote-control station which operates when the district office is closed, is located at the Sunset pumping station building approximately 350 ft. distant from the district office. Mobile units were installed in the district superintendent's car and the connection foreman's truck. Since then, fixed installations and mobile units have been made at Cranfield and Fayette, Miss. (Fig. 2).

At Shreveport a mobile unit has been mounted on a trailer with an adjustable tower. The purpose of this unit is to serve in locations where there is no system of communication, such as construction and repair projects.

Installation Costs

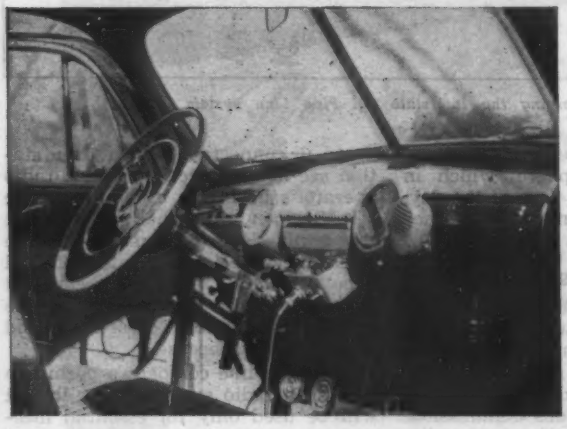
Radio installation is inexpensive compared to wire-line construction. The price of a mobile unit including heavy duty battery and generator is approximately $550 and a fixed station unit is approximately $700. Wire-line communication varies from about $600 per mile to as much as $1,500 per mile.

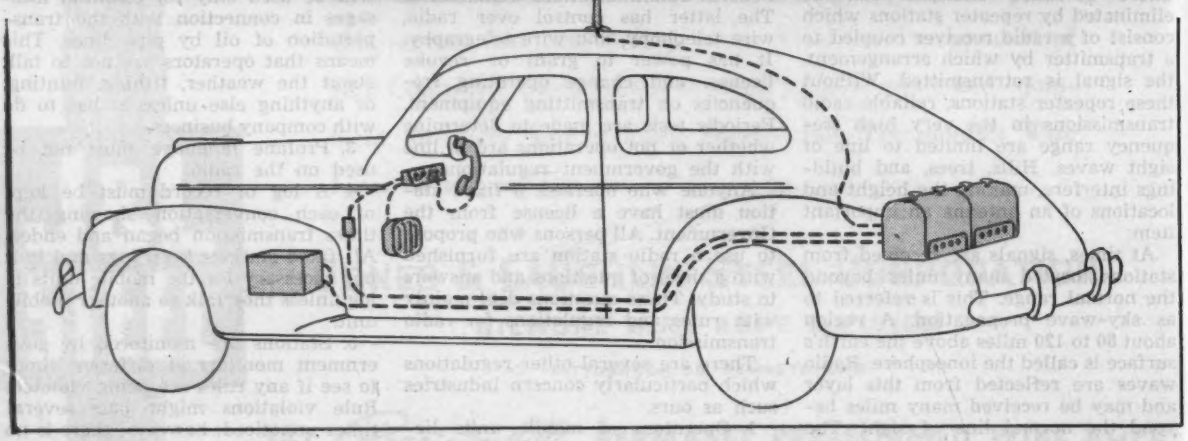
The installation at Wilson, consisting of a fixed station, two remote-control stations, six mobile units installed, amounted to $7,482. The installation at Sunset, Anse La Butte consisting of two fixed stations, one remote-control station, two mobile units, amounted to $4,128.

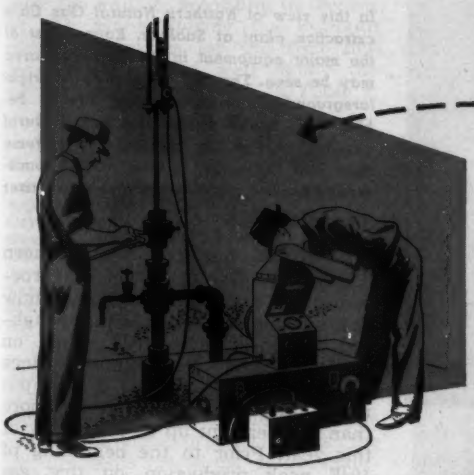
At Sunset station, communication by public long-distance telephone

(Continued on page 96)

At bottom is a diagram of mobile unit installed in company automobile. Mobile station control on dash board and mobile station equipment under turtle back of automobile are illustrated in the photographs







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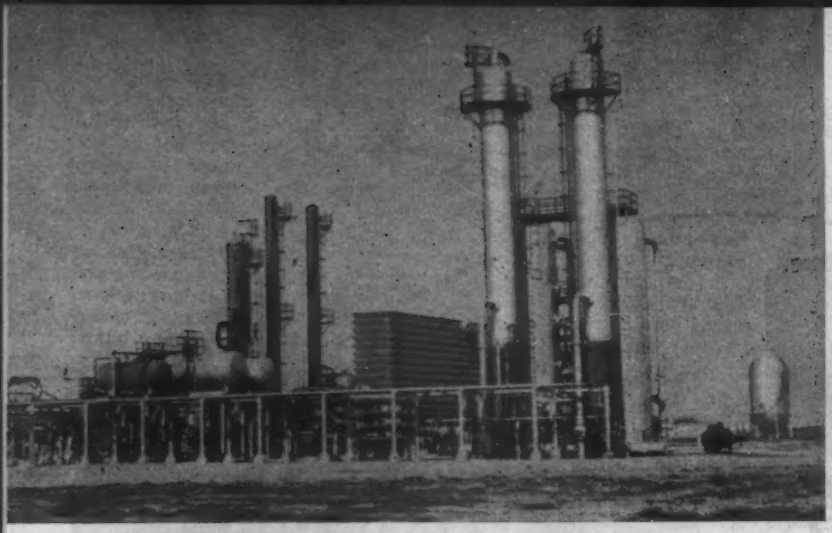


In this view of Northern Natural Gas Co.'s extraction plant at Sublette, Kans., most of the major equipment in the operating area may be seen. The two columns in the right foreground are absorbers and directly behind them is the dehydration unit. Natural gasoline is stored in the tanks at extreme right and the three columns in left background are two fractionators and a vaporizer

GAS-PROCESSING PLANT MAINTAINS

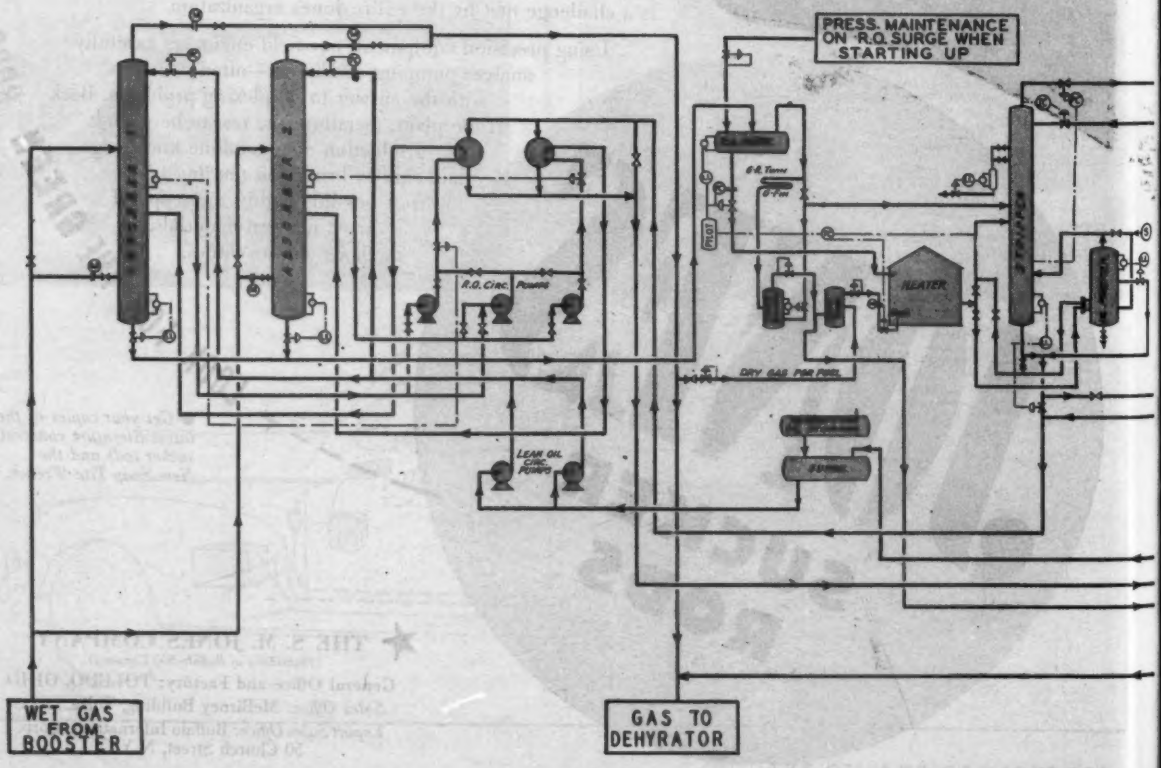
Stability at 150% Throughput

by R. B. Tuttle

RECORDS on operation of Northern Natural Gas Co.'s wet-gas processing unit near Sublette, Kans., show that substantial increases in throughput volumes have little effect on over-all plant performance. Since September 1946, average throughput rates have been increased by more than 150 per cent up to early May of this year. Prior to the beginning of 1947 peak production on dry gas averaged 143 million standard cubic feet per day, and soon thereafter operations were stepped up uniformly to the current rate of 190 million standard cubic feet per day.

The plant, a unit of Northern Natural's system for transporting gas from Hugoton field to north central areas, went into service in June 1946. Original operations of the plant were maintained at reduced throughput rates for several months pending installation of a system of loops for the main transmission line which work was completed early this year. Operations now are near normal for the system.

Over an 8-month period wet-gas input volume, on an average daily basis in standard cubic feet, is slightly



over 155 million, according to records at the plant. During the 8-month period operations for the first few months were held well below the period average as shown in Table 1.

TABLE 1

Month, year—	MM.c.f. avg. per day, standard basis
September 1946	120.0
October 1946	132.0
November 1946	141.4
December 1946	143.0
January 1947	153.5
February 1947	180.0
March 1947	182.0
April 1947	190.0

Without regard to input rates, operations are maintained to produce specification natural gasoline, liquefied petroleum gas, and fuel gas. The natural-gasoline product meets the requirements for 26 psi. R.v.p. material and L.P.G. production, a C_3-C_4 mixture, tests out at 100 psi. R.v.p. Residue gases from the plant are held closely to 990 B.t.u. per cu. ft. average value. Average analysis of the gas over the 8-month period and before processing is given in Table 2.

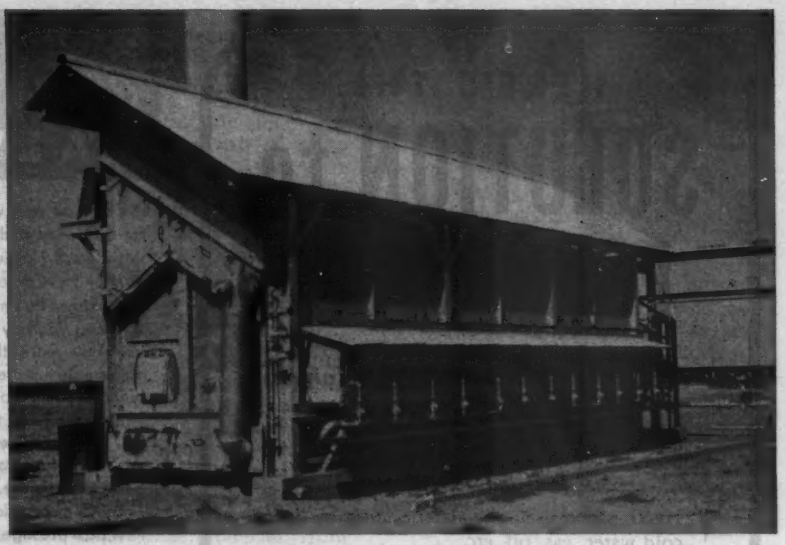
TABLE 2

Component—	Mol per cent
Nitrogen	15.10
Methane	72.96
Ethane	6.28
Propane	3.58
iso-Butane	0.40
n-Butane	1.15
iso-Pentane	0.21
n-Pentane	0.14
Hexane	0.18

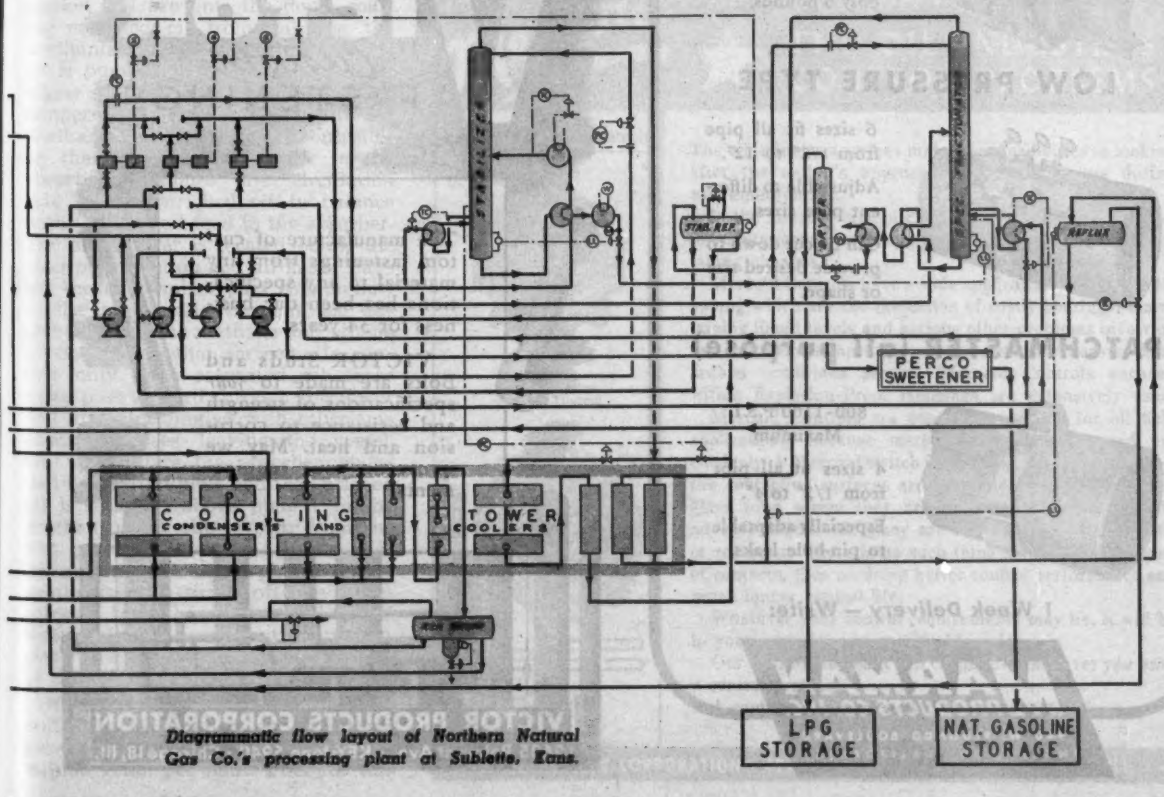
Wet gas is delivered to the unit at 440 psi. by a booster station located nearby. After stripping out the various liquid products and dehydrating the gas the unit delivers it to the trunk line at 433-435 psi. This 5 to 7 psi. drop through the process, which includes both natural gasoline and L.P.G. extraction and dehydration operations, is normal for a throughput of 190 million standard cubic feet per day. In the dehydration operation the dew point is depressed to minus 20° F.

Due to the large overload a 240 oil is used in absorption. Gas-oil ratio for current operations is maintained at 2.4 gal. per 1,000 cu. ft. and oil consumption for the 11-month period in which the plant has been in operation is reported at 0.80 gal. per million cubic feet.

Design capacity of the plant as originally constructed was for 140 million cubic feet per day input at 550 psi. On this design basis natural gasoline and L.P.G. production is shown to average out at 1.5



All of the heat used in the plant for processing nearly 2 million cubic feet of natural gas is supplied by the Alcorn heater shown here. Nominal rating of the unit is 13.6 million B.t.u. per hour



Diagrammatic flow layout of Northern Natural Gas Co.'s processing plant at Sublette, Kans.

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million gallons per month. Natural-gasoline production on a design basis is shown to be 80 per cent of the total liquid products with L.P.G. at 20 per cent. In actual operation L.P.G. production runs to 18 per cent and that of natural gasoline to 82 per cent of the total liquid produced in 11 months.

Flexibility of the plant, from a viewpoint of input rates is very broad and its control relatively simple. Operationable stability is shown to be good even when the unit is operated well below or above its design capacity. Except for one or two features the plant's design conforms to the conventional type of modern absorption process unit.

Absorbers in Parallel

Operation of the two absorbers is in parallel and each is identical in size and construction. The vessels, 78-in. by 69-ft., are equipped with 22-plate absorption sections and deethanizing sections of 6 plates. In order to maintain uniform temperature conditions in the deethanizing section that portion of the absorbers is insulated whereas the remaining parts of the vessel are bare. Under normal operations approximately 90 per cent of the methane and ethane are removed in the deethanizing section. The construction of the deethanizer is comparatively simple since it consists of only six conventional plates, one gas duct, and a distribution header for incoming gas. The duct performs a dual purpose in that it allows gases to pass from the deethanizing section into the absorption section and prevents the down coming enriched oil from entering the deethanizer. In operation the trapped oil is pumped to an exchanger bank where it is brought to the desired temperature and then returned to the deethanizer. A liquid-level controller on the trapped-oil reservoir in the absorber regulates the circulation rate of the enriched oil in balance with the lean oil feed to the absorber. The deethanizer is located below the absorption section and all gases leaving the deethanizer pass counterflow to the oil passing through the absorber. Since the methane and ethane leaving the deethanizer come in contact only with saturated oil these gases pass upward through the tower and are intermingled with other unabsorbed gases leaving the vessel. Wet gas enters the absorber above its twenty-first plate and the enriched oil is returned above plate 1 in the deethanizer. A slip stream from the wet gas feed is metered into a distribution header below plate 6 in the deethanizer to drive off the gases released from the rich-oil feed to this section. Liquid-level controllers regulate flow of rich oil from the bottom of the absorption-deethanizer vessels.

Heat for vaporizing the absorbed materials is supplied by an Alcorn gas-fired unit which is rated at 13.6 million B.t.u. per hour. Fuel for this heater is regulated by an automatic control system into which is incorporated a safety cutout. Control points in the system are temperature of heater outlet stream, flow to heater and liquid level in the rich oil surge tank.

The main vessel in the vaporizing section of the plant contains 18 plates and is 66 in. in diameter by 45 ft. in length. Feed to this vessel is introduced into the section above the ninth plate. Stripping is effected by introducing propane from another section of the process into the vessel at a point below its eighteenth plate. This method of employing propane instead of steam for stripping reduces appreciably the load in dehydration operations, according to plant records.

Two other vessels, identical in size and general design, serve as fractionators in the process. One of the vessels operates to stabilize material from the vaporizer and the other to depropanize the L.P.G.-mixture product. Each of the vessels is equipped with 30 plates and is sized to 36 in. by 59 ft. In each case feed connections on the vessels are located between plates 15 and 16.

Drying of the gas before delivery to pipe-line system is accomplished in a conventional solid-adsorbent plant. Operating cycle for the dehydration unit is 8 hours for the current throughput of the plant. The cycle is divided into 5-hour heating and 3-hour cooling periods wherein heating is with 400° F. plant-generated steam and the cooling with circulated gas. About 10 per cent of the gas throughput is required for reactivating the Florite adsorbent and 90,000 to 100,000 lb. of steam is used per day for heating, according to meter records. As given previously, dew point of the gas leaving the process is depressed to minus 20° F.

Installed boiler capacity at the plant is rated at 727 hp. but in normal operations steam consumption averages out to 525-550 b.hp. The only steam used in process operations in addition to that employed for reactivation of the adsorbent in the dehydrators and for space heating is that utilized by three reciprocating and two turbine pumping units. The turbine-driven pumps handle lean-oil circulation and boiler feed water and the reciprocating units operate in stabilizer and depropanizer charge service with one of the three units operating as a common spare. All other pumping equipment is powered electrically.

Designed and constructed by J. F. Prichard Co., Kansas City, Mo., the plant including all of its facilities is arranged for over-all operational convenience. All piping within the process area, except water lines, is located overhead on substantial supports. The plant is provided with its own deep-well water supply and a treating system for the steam-generating plant feed water.

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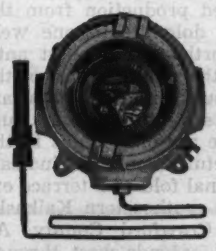

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Lithology and Thickness of the Traverse Group in Michigan Basin

by George V. Cohee

Michigan production, because of its location so far east, and nearness to Great Lakes refining centers, is more important than its volume might indicate. With production off about 12 per cent from 1946, and both development and wildcat drilling off about the same percentage, interest in aids to exploration is great. The digest presented here is from the U.S.G.S. Oil and Gas Investigations, Preliminary Chart No. 28.

THE Traverse group of middle Devonian age is important as a source for oil production in Michigan. Most of the oil produced in southwestern Michigan has been from the Traverse group; areas of Traverse production have been found elsewhere in the state, principally in the central basin area.

As the Traverse group crops out only in small areas in the northern part of the southern peninsula, most of the data regarding this group of rocks in Michigan is provided by drill cuttings from wells drilled for oil.

In this report, which was prepared in cooperation with the Michigan Geological Survey Division, Department of Conservation, Lansing, and the department of geology, University of Michigan, Ann Arbor, the attempt has been made to trace the Traverse group in the subsurface from the outcrop areas as an aid in the identification of certain Traverse strata in future drilling for oil and gas in Michigan.

Thickness

The Traverse group is thickest in the area of Saginaw Bay, where it has a maximum thickness of approximately 875 ft. In parts of Arenac, Ogemaw, Roscommon, Antrim, and Otsego counties the group is more than 800 ft. thick. Southward from the areas of greatest thickness it thins to less than 100 ft. in southwestern Berrien County and in southeastern Lenawee County. Part of this thinning is due to the absence of the Bell shale and the Squaw Bay limestone in southwestern Michigan.

Thinning of the Traverse over major anticlinal folds in the state suggests that some movement may have taken place along these structures during Traverse time. The entire sequence of the Traverse group is present in areas where this thinning occurs. The maximum thickness of the Traverse in the vicinity of Saginaw Bay is in part due to thickening of the Ferron Point formation and the Bell shale.

Structure

Structure contours on top of the Traverse group in the Michigan basin show a relief of more than 3,500 ft. from the outcrop area in northern Michigan to the center of the basin.

At places where the rocks are exposed at the surface in Cheboygan County the estimated top of the Traverse is more than 1,000 ft. above sea level, and in the center of the basin the top is about 2,500 ft. below sea level. From Cheboygan County the rocks dip into the basin at an average rate of approximately 38 ft. per mile. Where the Traverse underlies glacial drift in southeastern Michigan it has an elevation of more than 600 ft. above sea level, and from Lenawee County the rocks dip at an average rate of about 26 ft. per mile northward into the center of the basin.

The structure on the top of the Traverse group conforms to structure of the underlying Dundee-Rogers City sequence, and shows the dominant northwest-southeast anticlinal folds in the central basin area. The structural alignment in southwestern Michigan is likewise northwest-southeast, but some of the anticlines are aligned in northeast-southwest and north-south directions. The major anticlinal folds have more than 100 ft. of closure, but oil production is generally confined to the upper 40 to 60 ft. of the closed area.

Recent drilling in Oscoda County, which obtained production from the Detroit River dolomite in one well, indicates a northwest-southeast anticlinal fold in the southern part of the county. Although detailed data are not available, structure contours suggest that there are other folds in the county. Structure contours indicate that an anticlinal fold or a terrace extends through southeastern Kalkaska County into Crawford County. An anticlinal fold extends west through Sanilac and northern Tuscola counties toward Saginaw Bay on which a small area of Dundee production was recently found. An anticlinal fold also extends east and west through northern Lapeer County and northern Genesee County into Saginaw County. Wells have been drilled along this fold, resulting in the discovery of a small area of oil production in northern Genesee County. One well in the field produced oil from the Squaw Bay limestone.

The Howell anticline, which is the major structural feature in the Southern Peninsula of Michigan, extends through Wayne, Washtenaw, Oakland, Livingston, and Shiawassee counties. Shows of gas have been found in the Squaw Bay limestone on top of the structure, but as yet no commercial production has been developed on the anticline. Faulting on the west flank of the structure is indicated in the Crude Oil Co. of Michigan-Tooley 1 well, in 28-3n-4e, which penetrates the fault plane. Approximately 75 ft. of rocks of Traverse age are absent in this well. A full section of the Traverse is present in a well 1 mile east.

The Traverse outcrop area, which extends beneath the glacial drift north and south along the Lenawee-Monroe county line and bends eastward through Wachtenaw and Wayne counties into Essex County, Ontario, reflects the northward extension of the Findlay arch into Michigan. Other prominent structural irregularities in southeastern Michigan, including the anticlinal fold near Port Huron, where oil was obtained from Dundee limestone, and the syncline, extending from the Michigan basin into the Chatham sag, are indicated on the map by the contours on top of the Traverse.

Local folds involving the Traverse in northern Michigan are indicated by subsurface contours on top of the Traverse and by surface studies in the outcrop area. A local fold was observed in the vicinity of Afton, Cheboygan County. Southwest of Afton the Antrim shale crops out along the road near the center of 14-34n-1w, and the Genshaw formation crops out about 1 mile northeast of the Antrim shale. In this area about 375 ft. of rocks generally intervene between the base of the Antrim shale and the top of the Genshaw formation. Local folds are present in the Traverse rocks in the Little Traverse Bay region near Petoskey, Emmet County.

Map of Michigan basin, contoured on top of the Traverse

Oil Production

Although most of the oil produced from the Traverse group is from fields in southwestern Michigan, the Traverse is productive in a number of fields in the central basin area and around the margin of the central basin area. Oil production is predominantly from the Traverse in Headquarters field, Gladwin and Roscommon counties; Rose Lake field, Osceola County; Goodwell and Woodville fields, Newaygo County; Bloomer field, Montcalm and Iona counties; and Elba field, Gratiot County.

Traverse oil production in Rose Lake and Elba fields is from the Squaw Bay limestone. In Goodwell, Woodville, and Bloomer fields, oil production is from the Thunder Bay limestone. In Headquarters field oil is produced from the Potter Farm formation, 110 to 120 ft. below the top of the Traverse. The production in southwestern Michigan is from porous dolomite or limestone, overlying or associated with the uppermost chert layer in the upper part of the Traverse limestone, as referred to by drillers and operators. The upper producing zone is nearly everywhere 1 to 5 ft. below the top of the limestone, and is 3 to 4 ft. thick; in some fields in southwestern Michigan, however, the zone is as much as 8 ft. thick.

In some areas another producing zone, generally 4 ft. thick, is in crystalline limestone underlying the chert layer at depths from 17 to 35 ft. below the top of the limestone. As the porosity and thickness of the dolomitized layer vary within the different fields, it is difficult to predict the ultimate recovery of oil per acre. The greatest recovery per acre for the fields in southwestern Michigan to date is approximately 4,500 bbl. The best production from the Traverse has been obtained at places where the limestone has been dolomitized or altered to dolomite. Oil obtained from the Traverse has accounted for approximately 23 per cent of the state's total production of about 240 million barrels to January 1, 1946. Although much drilling has been done in southwestern Michigan, new areas of production are still being found. The most recent area is in 20-1n-16w, Allegan County, where the producing zone was found in the top of the Traverse limestone at a depth of about 1,100 ft.

Oil and Gas Possibilities

Large areas in Michigan still remain to be explored for oil production. In a number of counties in northern and southern Michigan only a few scattered tests have been drilled to potential oil-producing rocks. Further exploration along the structural trends in the central basin area and along the anticlinal folds in Kalkaska, Oscoda, Sanilac, Tuscola, Lapeer, and Genesee counties may locate areas of local closure which might yield oil and gas in commercial quantities. Although several wells have been drilled on the crest of the Howell anticline and only shows of oil and gas have been found, prospecting along the axis of the structure may reveal areas of closure, which may prove productive.

Further drilling in southwestern Michigan will undoubtedly locate more areas of Traverse production, although the irregularity of structural trends in that area adds to exploration difficulties. The production of oil from the Traverse in southwestern Michigan and in other parts of the state indicates that commercial oil production from these rocks depends on the presence of sufficient porosity and structural closure. It was of interest to find oil in solution cavities in the dense dolomite at the top of the Traverse in the outcrop along Ten Mile Creek near Silica, Lucas County, Ohio, and along the shore of Lake Michigan 1 mile north of Norwood, Emmet County, Michigan.

Natural-Gas Company To Rebuild Kansas Line

Kansas-Nebraska Natural Gas Co. of Phillipsburg, Kans., will rebuild its pipe line north of the Clifton, Kans., station at a cost in excess of $1,000,000.

The company has been granted authority by the Kansas Corporation Commission to issue common and preferred stock totaling $1,079,000 for the project.

The commission was scheduled early in July to hear a request by Eastern Kansas Pipeline Co. to abandon parts of an 8-in. line near Bronson and Moran, Kans.

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QUESTIONS on TECHNOLOGY

by W. L. Nelson
Consulting Engineer

Pressure Drop in Stills

NOTE.—Question arose on March 30, 1944, and again on August 31, 1946, regarding the pressure drop through pipe stills.

The lack of information about pressure drops through heaters is so important and its computation is so difficult that another installment is published here. Questions on Technology of March 30, 1944, indicated how pressure drops may be computed. On August 31, 1946, curves of the pressure drop and temperature throughout a pipe still when vaporizing 52.5, 60, 67.5, and 75 per cent were presented. The still conditions were:

Feed—mixed-base crude oil, A.P.I.	37
Mid-boiling point of crude, °F.	600
Charge rate, b.p.d.	2,000
Inside tube diameter, in.	3
Effective tube length, ft.	15
Equivalent tube length, ft.	30
Transfer line, ft.	70
(equivalent length), ft.	100
Velocity, based on 60° F., ft./sec.	1.37
Velocity, based on 400° F., ft./sec.	2.23
Slope of crude oil distillation curve, deg./per cent	9.4
Inlet temperature, °F.	400
Tower pressure, psig.	6
Radiant absorption rate, B.t.u./sq. ft.-hr. on projected area	25,000
Efficiency, per cent	77

The curves presented here are for the same still and conditions except that the feedstock has a slope of 7.0° per per cent. The stock centers about the same boiling range (50 per cent point of 600° F.). Such a material would be representative of a high-boiling but narrow boiling-range crude oil and it would be representative of many gas oils or synthetic mixtures. Fig. 1 shows pressure drop versus effective (heated) length, Fig. 2 shows temperature versus length, and Fig. 3 shows the percentage vaporization versus length.

Not much in the way of conclusions can be drawn from the sets of curves shown here, and the set published previously. Smaller stills are required for the flat boiling-range stocks and therefore the pressure drops are smaller.

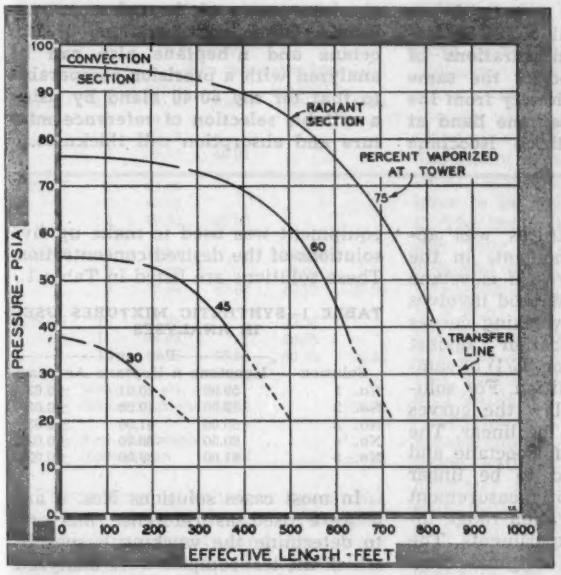

Fig. 1—(Left) Pressure drop in pipe stills—2,000 bbl. per day of a stock of slope 7.0 in 3-in.-I.d. tubes

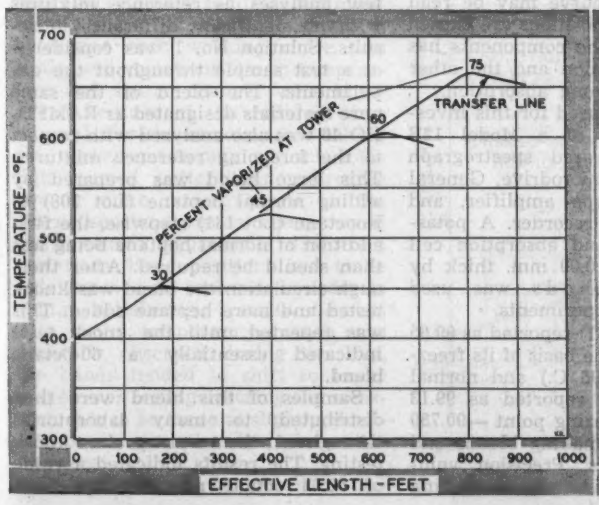

Fig. 2—(Below, left) Temperature drop in pipe stills—2,000 bbl. per day of a stock of slope 7.0 in 3-in.-I.d. tubes

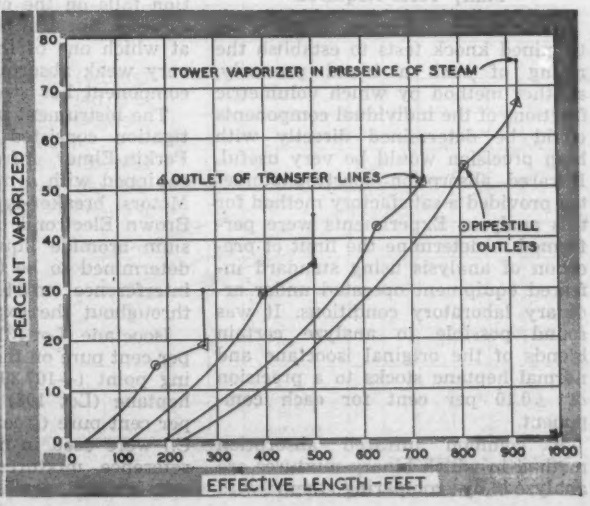

Fig. 3—(Below, right) Percentage vaporized in pipe stills—2,000 bbl. per day of a stock of slope 7.0 in 3-in.-I.d. tubes

Oil Shakeout or Grindout

I am wondering if you can furnish me with information concerning oil shakeouts and gravity corrections or anything connected with it.—L. O. D.

The base sediment and water (b.s. and w.) in crude oil is determined by diluting the crude oil half and half with benzol or benzene (90 per cent or technical grade). Fifty milliliters of the oil is used and the 100-ml. mixture is centrifuged for 10 minutes at a speed of 1,400-1,500 r.p.m. The accumulation of water and milliliters of debris that collects in the bottom of the centrifuge tube is multiplied by 2 to obtain the b.s. and w.

Such a test is called a "grindout," probably because many field centrifuges are cranked by hand. In some localities such a test may be called a "shakeout."

Tables for the correction of A.P.I. gravity from the testing temperature to the standard temperature of 60° F. are available in the Tag Manual for Inspectors of Petroleum which can be obtained from Refinery Supply Co. of Tulsa, or from C. J. Tagliabue Manufacturing Co., Park & Nostrand Avenues, Brooklyn 5, N. Y. This book also describes the b.s. and w. and many other tests.

Infrared Analysis of Mixtures of Isooctane and Normal Heptane

by Annette E. Herald and Harold A. Price

PROCEDURES were developed for precision analysis of isooctane-normal heptane mixtures by infrared absorption spectrophotometry. Blends of 60 per cent isooctane and 40 per cent normal heptane were analyzed to a precision of ±0.1 per cent of either component using a Model 12B Perkin-Elmer Infrared spectrograph.

Accurately blended synthetic reference mixtures were used to determine working curves over a 2 per cent range from 59-41 to 61-39 isooctane-n-heptane. Concentrations of test samples composed of the same materials were read directly from the curves. One normal heptane band at 13.82 microns and three isooctane bands at 8.01, 8.28, and 8.54 microns were used for these analyses. Under similar conditions of instrument operation, analyses could be made with comparable precision at any of the four wave lengths.

Although this method gives directly the composition of a blend in terms of the original materials used in making the blend, the actual isooctane-n-heptane concentration can be readily computed from the known absolute purity of the reference materials. Other concentrations of isooctane and n-heptane also can be analyzed with a precision camparable to that for the 60-40 blend by using a suitable selection of reference mixture and absorption cell thickness.

WITH the advent of low-cost knock-test reference fuels meeting the specifications of the present primary fuels, the former secondary-type reference fuels were discontinued because of the many advantages of using reference fuels similar to the primary standards rather than secondary fuels, some of which vary widely from the primary standards. This was of great importance particularly in road-test work where it was so expensive to calibrate the secondary fuels that it was rarely done. However, one advantage of the secondary fuels was lost by this change. The secondary fuels were several in number and spaced over the octane range. As a result the blending errors in preparing intermediate blends of the new low cost isooctane and normal heptane were two to three times greater for a given apparatus than with the former secondary fuels.

To remedy this in part at least the Coordinating Fuel Research (C.F.R.) Committee reuested Phillips Petroleum Co. to prepare a 60 per cent isooctane (2,2,4-trimethylpentane) and 40 per cent normal heptane blend. This blend was prepared and tested in a large number of knock-test engines in many laboratories. The National Bureau of Standards analyzed the results and certified on the basis of them that the blend was 60 octane number. This blend was then designated RAMFD-HO-46 by the C.F.R. committee.

Many Tests Required

Since it requires many carefully determined knock tests to establish the rating of such a blend precisely, another method by which volumetric fractions of the individual components could be determined directly with high precision would be very useful. Infrared absorption spectrophotometry provided a satisfactory method for this analysis. Experiments were performed to determine the limit of precision of analysis using standard infrared equipment operated under ordinary laboratory conditions. It was found possible to analyze certain blends of the original isooctane and normal heptane stocks to a precision of ±0.10 per cent for each component.

A common infrared absorption method in which binary mixtures are analyzed by comparing them with known synthetic mixtures was applied with some refinements in the analysis of the mixtures of isooctane and normal heptane. Method involves the determination of working curves by plotting concentration against measured extinction (log. I_0/I) of samples of known composition. For solutions obeying Beer's law the curves that are obtained will be linear. The curves for mixtures of isooctane and n-heptane were found to be linear within the accuracy of measurement for the small concentration range investigated in these experiments. The concentrations of the original components of a mixture whose extinction falls on the curve may be read directly. Spectral positions are chosen at which one of the components has very weak absorption and the other component has strong absorption.

The instrument used for this investigation consisted of a Model 12B Perkin-Elmer infrared spectrograph equipped with a microdrive, General Motors breaker-type amplifier, and Brown Electronik recorder. A potassium bromide liquid absorption cell determined to be 0.09 mm. thick by interference methods was used throughout the experiments.

Isooctane (Lot 131) reported as 99.65 per cent pure on the basis of its freezing point (—107.396 C.) and normal heptane (Lot 108) reported as 99.13 per cent pure (freezing point —90.750 C.) were used in making blends and reference mixtures. Precision volumetric and gravimetric measuring equipment was used to make up five solutions of the desired concentration. These solutions are listed in Table 1.

TABLE 1—SYNTHETIC MIXTURES USED IN ANALYSES

Solution—	Per cent Isooctane	Per cent n-Heptane	Accuracy
No. 1	59.99	40.01	±0.03
No. 2	59.50	40.50	±0.03
No. 3	59.00	41.00	±0.03
No. 4	60.50	39.50	±0.03
No. 5	61.00	39.00	±0.03

In most cases solutions Nos. 3 and 5 were used as reference mixtures to determine the working curves by which the test samples were analyzed. Solutions Nos. 2 and 4 were used in a few analyses as reference mixtures with no significant difference in results. Solution No. 1 was considered as a test sample throughout the experiments. The blend of the same pure materials designated as RAMFD-HO-46 was also analyzed with respect to the foregoing reference mixtures. This large blend was prepared by adding normal heptane (Lot 108) to isooctane (Lot 131) stepwise, the first addition of normal heptane being less than should be required. After thorough circulation the blend was knock tested and more heptane added. This was repeated until the knock tests indicated essentially a 60-octane blend.

Samples of this blend were then distributed to many laboratories throughout the country for knock testing. The results indicated a value of 60.03 octane number. The tank

gaging was carried out very carefully in making this blend and, while not considered nearly as accurate as even the knock tests, indicated a composition of 59.95 per cent isooctane and 40.05 per cent normal heptane.

Preliminary study of the spectra of isooctane and n-heptane showed that three isooctane bands (8.01, 8.28, and 8.54 microns) and one -heptane band (13.82 microns) were most favorable for this analysis. A 60-40 mixture of isooctane and n-heptane gave favorable extinctions at these bands in the 0.09-mm. liquid absorption cell.

Experimental conditions were observed and controlled as carefully as possible. Temperature variations proved to be one of the most serious sources of experimental error. The effects of changing temperature were minimized as much as possible by reducing the time over which data were taken on individual trial analyses and by frequent redetermination of the position of maximum absorption.

TABLE 2—ANALYSES AT THE 13.82 MICRON BAND OF NORMAL HEPTANE

		Per cent n-heptane			
		Soln.		RAMFD-	
Date	Run	No. 1	Mean	HO-46	Mean
1-23-47	1	40.10	....	....	....
	2	40.17	....	....	....
	3	39.75	40.01	....	....
1-23-47	4	40.00	....	....	....
	5	40.00	....	....	....
	6	40.00	40.00	....	....
1-24-47	7	39.89	....	39.89	....
	8	40.20	....	40.03	....
	9	40.04	40.04	39.92	39.95
1-24-47	10	40.05	....	39.96	....
	11	40.03	....	40.06	....
	12	40.03	40.04	40.00	40.01
	Mean of all determinations	40.02	....		39.98
	Avg. deviation from mean	±0.08	....		±0.06

The reference solutions were run each time along with the test samples so that instrument conditions were as nearly identical as possible for each set of measurements. By using only two reference solutions the minimum number of readings needed to determine each working curve was made, and variations due to temperature and source changes were minimized because of the reduced time interval. For the same reasons taking one measurement only of each solution seemed better than averaging two or more measurements on the sharp isooctane bands where small shifts caused appreciable extinction variations. Band positions had to be redetermined on each run in order to obtain satisfactory results because with rising temperature, which was generally observed during the day, the bands tended to shift to lower micrometer settings causing the measurements to be made at slightly shorter wave length unless the micrometer was reset.

Source stability was essential and I_o readings repeated over several minutes time had to remain constant within a few tenths of a millimeter in order to obtain satisfactory results. Temperature stability was also important and observations taken while there was a minimum rate of change of temperature proved most satisfactory. To reduce temperature dependent errors to negligible values, room temperature would probably have to be controlled to within ±0.3 C. The best set of results obtained at any time during these studies was obtained one afternoon when the room temperature happened to be constant to within ±0.1 C. and I_o stability was excellent (189.9 ±0.3 mm.). The three analyses of solution No. 1 made at this time are shown in runs 4, 5, and 6 of Table 2.

Results were better when spot measurements were taken (readings made without changing slit or micrometer settings) than when short scannings were made. Each I and I_o measurement was made by averaging about four deflections. With the chart speed of the recorder at 30 in. per hour uniform time intervals between deflections could be judged simply by watching the chart. By this means a permanent record of the primary measurements was obtained. The recorder potentiometer was standardized manually between each set of deflections.

Each analysis run consisted of measurements of two reference mixtures and one or two test samples. Three consecutive runs were usually made but each was considered independently of the others. Frequently, extinction values changed from one run to the next because of slight differences in actual spectral position.

Four sets of three trial analyses were made first at the n-heptane band at 13.82 microns. The results are presented in Table 2. Solutions 3 and 5 were used as reference mixtures in determining the working curves for all runs except 7, 8 and 9 where Solutions 2 and 4 were used. The working curves determined in Runs 10, 11, and 12 are shown in Fig. 1 as an illustration of the method of analysis. Each extinction value was

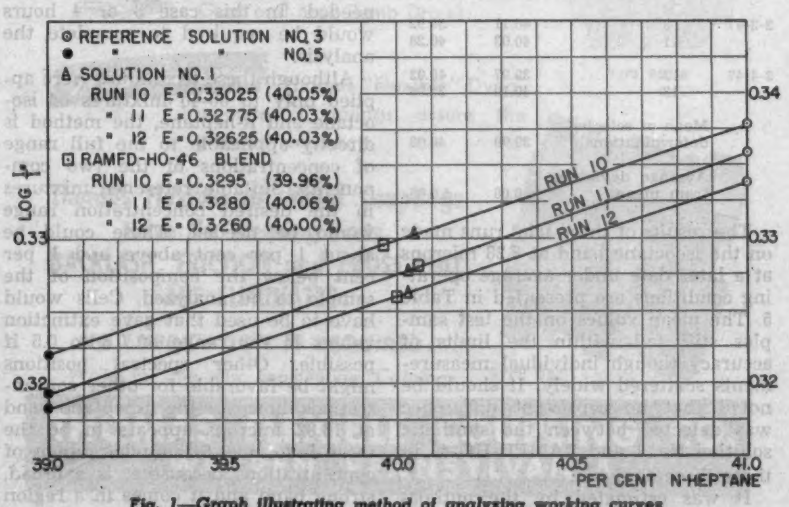

Fig. 1—Graph illustrating method of analyzing working curves

THE AUTHORS

A. E. HERALD

H. A. PRICE

Annette E. Herald received her B.S. degree in 1940 from Oklahoma A. & M. College at Stillwater. She did her graduate work at University of Oklahoma at Norman. For 2 years she held the Ethyl Corp. fellowship there and worked in the field of infrared absorption spectroscopy under Prof. J. Rud Nielsen. She received her M.S. degree in physics in June 1944 and since that time has been associated with the physics division of the research department of Phillips Petroleum Co. at Bartlesville, Okla. Her work has been concerned principally with infrared absorption spectroscopy.

Harold A. Price has been employed in the analytical laboratory of the research department of Phillips Petroleum Co. since October 1945, where he is conducting spectroscopic studies. Prior to that time he worked 7 years in the South Dakota State Chemical Laboratory. Price is a native of South Dakota and received a B.S. degree in 1938 in chemical engineering from the South Dakota School of Mine and Technology. In addition he has completed 1½ years of graduate study at University of South Dakota.

determined by averaging two consecutive measurements.

The next trial analyses were made at the three isooctane bands and the results are given in Table 3. The mean value for isooctane concentration was 59.96 per cent and with the mean value of 40.02 per cent n-heptane from Table 2 a material balance of 99.98 per cent was obtained on solution No. 1.

TABLE 3—ANALYSES OF SOLUTION NO. 1 AT THREE ISOOCTANE BANDS

		Per cent isooctane		
Date	Run	Wave length (microns)	Soln. No. 1	Mean
1-26-47	1	8.28	59.92	....
	2	....	60.04	....
	3	....	59.96	....
	4	....	59.88	....
	5	....	59.96	59.95
1-30-47	6	8.54	59.94	....
	7	....	60.05	....
	8	....	59.95	59.98
	9	8.01	59.96	....
	10	....	59.96	....
	11	....	60.01	59.98
Mean of all determinations				59.96
Average deviation from mean				±0.04

Sixteen trial analyses were made later of solution No. 1 and the blend, RAMFD-HO-46, at the n-heptane band when operating conditions were not as favorable as on the earlier runs. Ten trial runs were selected in which solution No. 1 was satisfactorily analyzed and these together with the corresponding runs on RAMFD-HO-46 are presented in Table 4. The mean values on these selected runs fell within the limits of variation allowed in the estimated over-all precision of the method.

TABLE 4—SELECTED ANALYSES AT 13.82 MICRON BAND OF NORMAL HEPTANE

		Per cent n-heptane		
Date	Run	Wave length (microns)	Soln. No. 1	RAMFD-HO-46
1-31-47	2	13.82	39.94	40.12
	3	....	40.00	40.07
	4	....	39.89	40.17
	5	....	39.86	39.91
	6	....	40.00	40.18
	7	....	40.00	40.17
2-3-47	8	....	40.11	39.92
	11	....	40.03	40.28
2-4-47	12	....	39.97	40.02
	13	....	40.10	39.96
Mean of selected determinations			39.99	40.08
Average deviation from mean			±0.06	±0.09

The results of three trial runs made on the isooctane band at 8.28 microns at a later date under average operating conditions are presented in Table 5. The mean values on the test samples still fell within the limits of accuracy though individual measurements scattered widely. It should be noted that no consistent difference was detected between the synthetic solution No. 1 and RAMFD-HO-46 in these three analyses.

It was estimated by the authors

TABLE 5—ANALYSES COMPARING TEST SAMPLES AT 8.28 MICRON ISOOCTANE BAND

			Per cent isooctane		
Date	Run	Wave length	Soln. No. 1	RAMFD-HO-46	Diff.
1-14-47	1	8.28	59.80	59.80	0.00
	2	...	59.97	59.90	0.07
	3	...	60.27	60.27	0.00
		Mean	60.01	59.99	0.02

that under ideal operating conditions a precision of ±0.05 per cent could be obtained by averaging 6 to 10 independent determinations of a blend of unknown concentration. However, a precision of ±0.10 per cent could be expected under average operating conditions if runs giving satisfactory results on a known sample run at the same time were selected and the mean value of several trial analyses was used.

Comparison of all of the results of analyses of solution No. 1 and RAMFD-HO-46 indicate that this latter blend is 40.0 per cent n-heptane and 60.0 per cent isooctane ±0.1 per cent in terms of the original materials used in making up the blend.

Discussion

This infrared analytical method would find very important applications in the certification of batches of reference fuel blended from high-grade isooctane and normal heptane. It requires only the infrared equipment already in use in many research or control laboratories. Careful manipulation of this equipment by trained operators is the prime requisite for successful application of the method. With the reference mixtures used for determining the working curves available, and with the infrared instrument operating satisfactorily, operators who had used the method could perform an analysis to a precision of ±0.2 to 0.3 per cent within an hour from the time the sample was received. In order to get precision as high as ±0.1 per cent the average of three to five analyses, or possibly even more depending on instrument performance, would be needed. In this case 3 or 4 hours would be required to complete the analysis.

Although these techniques were applied only to 60-40 mixtures of isooctane and n-heptane, the method is directly applicable to the full range of concentrations of the two components. Suitable reference mixtures in the desired concentration range would be needed. These could be about 1 per cent above and 1 per cent below the composition of the sample to be analyzed. Cells would have to be used that gave extinction values in the range of 0.3 to 0.5 if possible. Other spectral positions might be favorable for other concentrations, however the n-heptane band at 13.82 microns appears to be the most favorable for a wide range of concentrations because it is a broad, strong band and it comes in a region where isooctane has very little absorption.

The method gives directly the composition of a blend in terms of the original materials used in making the blend. If the information were required, the actual composition in terms of isooctane and n-heptane concentration could be readily computed from the known absolute purity of the reference materials. Highly pure materials are most resirable in making blends, however, it is estimated that if the purity is 99 per cent or better, the impurities would cause a negligible effect on results. Absolute purity could then be computed from the known purity of the blending materials.

Short-Wave Radio Facilitates Operation

(Continued from page 84)

became so difficult that it was almost impossible to conduct business. A survey was made and it was estimated that a company telephone line would cost approximately $9,000 to build. After investigating, it was decided to install radio equipment. The installation was made for approximately one-half the estimated cost of the telephone line, and operation has been highly satisfactory.

Field Operations

Wire-line communication systems give good service, but are limited in use to the fixed location of facilities, such as offices, pump stations, etc. For long-line transmission and trunk-line service, they are still essential and no doubt will continue to be used indefinitely, The radio is limited to line-of-sight transmission, the normal range having a radius of approximately 45 miles; however, ranges of 100 miles have been encountered at times. This makes radio desirable in field operations. In many locations, the wires do not follow the pipe lines, and to communicate with repair gangs working in the field at points not directly connected to the communication system, it is sometimes necessary to send word, or wait until the repair gangs return to get in touch with them. In cases of emergency, time has been lost due to inability to quickly contact the repairmen.

By use of the radio, the repair gangs can be reached immediately and much valuable time has been saved because of this. In repairing leaks, the office can be contacted directly and station shut downs can be made almost immediately. As soon as a repair has been effected, the station can be started up, thereby eliminating the necessity of waiting until a telephone can be reached or word sent to the pumping station.

The following is an example, illus-

trating the use of radio on an actual leak repair job.

On May 31, 1946, at about 6 p.m., a farmer notified Hewitt station that there was a leak on his farm some 15 miles from the station. While one man notified the repair men, the foreman drove to the leak. By the time the gang had assembled, the foreman was able to report the condition of the leak to the district office by means of radio, and thus, the gang knew where they were going and what to take along. When the leak was dug out, it was found to be a rust hole, and pressure was too great to apply a patch. Hewitt station was then notified by radio to open the bypass. In a few minutes, the patch was applied, and Hewitt station was again notified to start closing the bypass and build the pressure up to normal.

Before radio communication, it would have been necessary, after the leak was dug out, for a foreman to have driven approximately 3 miles to a telephone to call and shut down Hewitt station. After the leak was repaired, it would have been necessary to go through the same process to start Hewitt station up again. In addition to the loss of oil and the damage to the land, it is conservatively estimated that 3 hours of pumping time were saved through the use of radio communication. This is only one example of the advantages of the radio.

Little difficulty has been experienced in the field in transmitting messages between points of operation. The station at Wilson has had some interference from a station on the east coast, and Sunset station has had some interference from a police radio located at Lafayette. These difficulties are being worked out at present, and we feel sure that they can be overcome without too much trouble.

Operation of the units is relatively simple. However, there are a few important points which should be noted. Speaking loudly is not necessary. It is more important to talk slowly and distinctly. The lips should be 4 to 5 in. from the microphone. If any part of a message is not received clearly, it is necessary to wait until the party transmitting has finished before asking for a repetition. Any important message containing figures should be repeated.

There have been no maintenance costs to date, other than that of replacing a radio tube now and then.

Conclusion

Radio installations to date in pipeline operations have proven their worth. Savings in time, money, and extra work have more than justified the expenditure involved. It is felt that radio will eventually be as essential to field operations as the automobile and truck are today.

BOOKS

TEXAS PETROLEUM DIRECTORY. Published by Petroleum Personnel Research, 502-4166 Lindell Blvd., St. Louis 8, Mo. $7.50.

This volume is a listing, by cities, of some 16,000 men of the Texas oil industry. Addresses and telephone numbers are given for all persons listed. This is the first volume to be published, and it is planned to publish it at least once annually in the future. Also, in succeeding years other oil states, in addition to Texas, are to be covered.

INTERNATIONAL CONTRACTS AND ANTITRUST LAWS. By Harry Aubrey Toulmin, Jr. Published by W. H. Anderson Co., Cincinnati. 1,068 pp. $15.

The object of this book is to show business men how to negotiate and draft sound international contracts and avoid antitrust violations. Some of the important topics treated are: cartels; counter-cartels; reciprocal trade agreements; import trade practice; cross-licensing; price fixing; foreign antitrust laws; patent pooling agreements; analysis of the General Electric-Krupp agreement; trade associations; Wilson Tariff Act; Panama Canal Act; Civil Aeronautics Act.; Antidumping Laws, etc.

The author, who is head of the international law firm of Toulmin & Toulmin, of Washington and Dayton, has been dealing with foreign trade relations for more than 30 years. He served as a colonel in both World wars and in the latter one was assigned repeatedly to engineering and military procurement posts in the Army Air Forces and the Transportation Corps.

S.A.E. HANDBOOK. Published by Society of Automotive Engineers, 29 West 39th Street, New York City. $10.

This 1947 edition is one-third thinner and ½ lb. lighter than the previous edition, yet presents 10 per cent more text. It makes available war-developed data and new standards, plus material revised from 36 prior editions.

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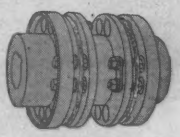
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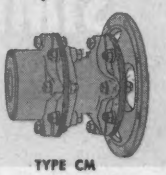
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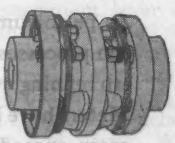
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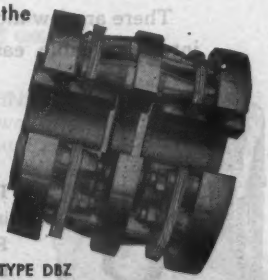
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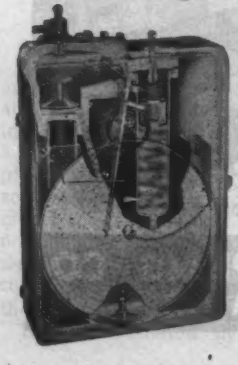

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OIL AND GAS EQUIPMENT Digest

IT'S NEW CHECK IT

by John M. Spears

(1) NEW TUBING ELEVATOR is made of high-strength manganese-molybdenum steel and has a capacity of 50 tons at a weight of 53 lb. for sizes up to 3½-in. and 64 lb. for the 4½-in. size. Elevator will operate with 1½-in. to 2¾-in. elevator links and has automatic spring-actuated opening when the latch is operated. Operating handles have been made amply long to provide ease in operation and a pressure lubricating fitting on the main hinge pin eliminates difficult opening and closing. *Web Wilson Oil Tools.*

IT'S NEW CHECK IT

(2) NEW ELECTRODE HOLDER is an insulated tong-type for the job shop or maintenance welder using 200-amp. welding equipment. Unit features light weight,

compactness, and ease of operation with a 95-lb. bite on a 3/16-in. electrode. Tip and body insulation is molded laminated glass-cloth Bakelite using the tubular-keyed design. Insulated spring is Neoprene covered. Cable connection is a simple clamp, plus socket for soldering when desired. *Tweco Products Co.*

IT'S NEW CHECK IT

(3) NEW PORTABLE SAW enables rig and tank locations, pipe line right-of-ways, and leases to be easily and quickly cleared for moving in equipment. New design incorporates "Rototrac" self-propelling which is a simplified friction drive that operates from the engine

shaft. Operator can instantly engage or disengage the propelling mechanism by use of a convenient lever on handle of machine. Travel speed can be regulated by the engine throttle. New automatic clutch is mercury-filled fluid and centrifugal action type. Clutch automatically engages when throttle is open and disengages instantly when throttle is closed or if saw blade pinches. Clutch feature makes starting faster and easier. Will travel over all types of terrain. *Harry A. Lowther Co.*

IT'S NEW CHECK IT

(4) NEW HEAVY-DUTY ENGINE is a medium-speed, long-life prime mover for oil-well pumping units, pumping powers, pipe-line pumps, and generator service. Unit

The Oil and Gas Equipment Digest presents a review of what is new in equipment and trade literature . . . makes it possible for readers to obtain full information on every subject by use of convenient "Check It—Mail It" service card. This periodic feature of The Oil and Gas Journal will include all that is new in equipment . . . at a time when new products are being introduced, and existing products improved.

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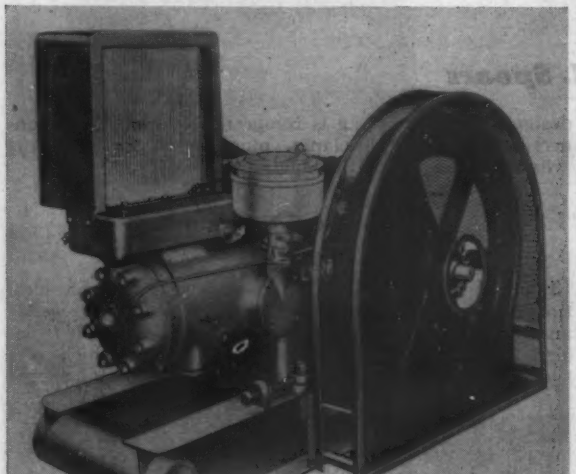
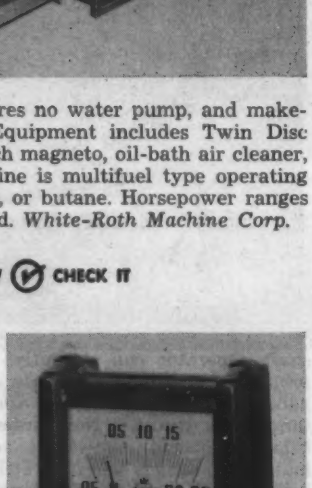
is a single cylinder horizontal, two-cycle type with Timken bearings on crankshaft and crosshaft. "Wet" cylinder liner can be replaced in the field. Condenser-



type cooling system requires no water pump, and make-up water is negligible. Equipment includes Twin Disc power-takeoff clutch, Basch magneto, oil-bath air cleaner, and Pierce governor. Engine is multifuel type operating on diesel fuel, natural gas, or butane. Horsepower ranges meet needs of the oil field. *White-Roth Machine Corp.*

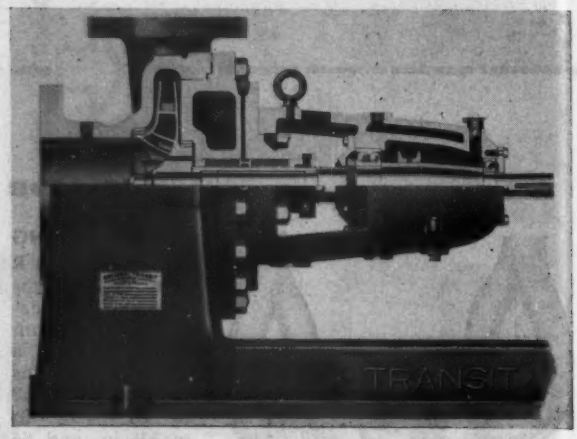
IT'S NEW CHECK IT

(5) NEW DRAFT GAGE for heating-plant use is supplied with 9 ft. of rubber tubing and a 5-in. metal sampling tube. Can be used for readings at point of draft measurement, or placed any distance away from the test point. Can be easily mounted on a panel, hung on a wall, or simply set on any flat surface. A large-area diaphragm enclosed in a metal housing assures sustained accuracy and trouble-free service. Other features include: a distinctive 3-in. wide scale which can be read accurately and easily even in dim light; zero adjustment can be made without removing any parts; self-contained and compact. *Bacharach Industrial Instrument Co.*



IT'S NEW CHECK IT

(6) PROCESS CENTRIFUGAL PUMP handles hot, high-pressure liquids near boiling point. New pump has broad capacity range from 40 to 1,500 g.p.m. at speeds from 1,750 to 4,000 r.p.m. Allowable operating pressures for cast iron pumps is 600 psi. at 100° F., 500 psi. at 450° F.;



for steel pumps, 1,000 psi. at 100° F., 500 psi. at 800° F. Pump is especially adaptable for those services where continuity of operation is very important, suction pressure or vacuum is extremely high, and stuffing-box leakage is an expensive loss or is hazardous. *National Transit Pump & Machine Co.*

IT'S NEW CHECK IT

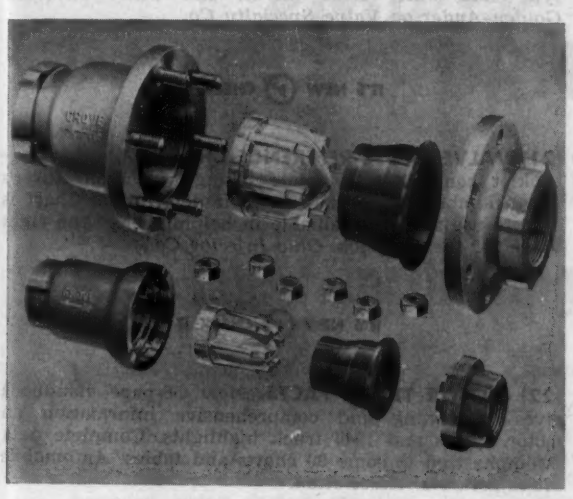
(7) NEW RAMBLER RIG for oil, gas, and water wells provides speed over the road, in rigging up, and in completing the job. Hydrair hoists are fluid-powered and driven by direct air clutches. Variable speeds without gears are obtained through combined use of a torque converter and a Hi-LO instantaneous speed-change arrangement. Fluid power automatically adjusts speed ratios to the most favorable operating conditions and provides maximum pull for coming out without shock or clutch slipping. A single lever for high, low, neutral, and

throttle operates all air controls and eliminates a maze of foot pedals and hand levers. Direct air clutches require no adjustment, no lubrication with positive and complete disengagement assuring no wear while idling. *International Derrick & Equipment Co.*

IT'S NEW CHECK IT

(8) NEW CHEXFLO VALVES embody no metalic operating parts to stick, slam, chatter, or leak. Tough flexible-tubular operating member, comprised of a thick-

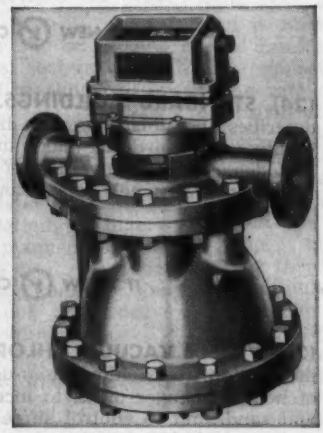
load section, tapering down to a sensitive operating lip, requires no differential pressure to effect positive bubble-tight shut off. Tapered synthetic-rubber lip freely expands to open, permitting unrestricted streamline flow. Due to resilent elasticity it smoothly contracts to close on slack flow—prior to the start of back flow. The



degree to which it opens or closes is in direct ratio to flow volume. In open and closed position it is fully supported against extreme pressure or intensive impulse shocks by inner walls of valve body and the cylindrical acorn-shaped core which it encompasses. As it reaches shut-off position, flow velocity increases to flush the seating surface of any small particles. *Grove Regulator Co.*

IT'S NEW CHECK IT

(9) STAINLESS-STEEL METER, with ½-in., 50-g.p.m. capacity, prevents corrosion discoloration or contamination in petroleum and chemical installations. Internal chemically resistant construction reduces friction to a minimum. Vertical piston operation minimizes cylinder and piston wear. Direction of flow keeps suspended material flowing evenly through meter. Very few working parts. Maximum working pressure is 250 psi. *Bowser, Inc.*



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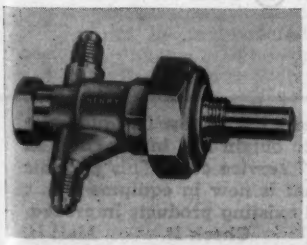
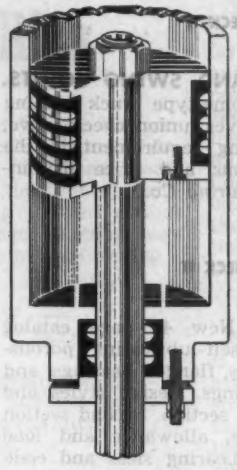


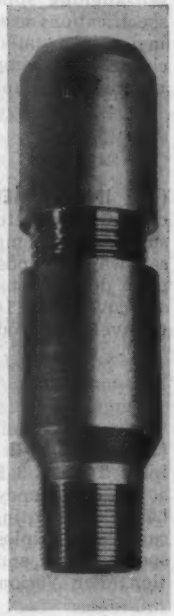
(10) PUSH-BUTTON PACKLESS VALVE handles oil, air, water, or any substance not corrosive to brass. Valve is normally open and is designed for operations where either manual or automatic instantaneous valve operation is desired, and where leakage around conventional packing would be objectionable. Valve has a renewable disc, renewable diaphragm, and a threaded collar around the push button, which permits it to be mounted through a flush panel opening. Valve can be furnished with male S.A.E., I.P.S., or female solder connections in sizes ¼ in. through ½ in. Has forged brass body. Withstands pressure up to 100 lb. *Henry Valve Co.*

IT'S NEW CHECK IT



(11) FLOATING SEAL METALLIC PACKING is speedy and foolproof to install. It eliminates leakage without reducing packing flexibility. New packing is adapted to both rod and plunger-type operations and is useful for all types of compressors; steam units; hydraulic units; oil, acid or water pumps, hot or cold. Each unit consists of two metal rings and a new type synthetic ring. Packing features include longer life and highly efficient seal. *Rodpak Manufacturing Co.*

IT'S NEW CHECK IT



(12) NEW TUBE-JOINT protects tubing, speeds up handling, and permits various uses of tubing in well-completion and reworking operations when otherwise a string of drill pipe might be required. Joints are made from high-alloy steel stock, heat treated, and carefully machined and gaged to assure 100 per cent interchangeability and long service. Pipe and threads are A.P.I. with tube joint threads modified A.P.I. form. Joints are available in all tubing sizes and threads. Tube-Joints come in a skid-mounted, all-metal case for easy handling to and from location and to prevent loss or damage to threads or joints. *Longhorn Machine Works.*

IT'S NEW CHECK IT

TRADE LITERATURE

(13) PACKING CATALOG. New 16-page condensed catalog contains illustrations and descriptions of many popular styles of mechanical packings. Recommendation chart shows style numbers of packings for practically every type of service. *Asbestos Textile & Packing Division, Raybestos-Manhattan, Inc.*

IT'S NEW CHECK IT

(14) AERIAL SURVEYS. How aerial maps reduce engineering costs and cut time required to put planning programs in operation is explained in two-color folder. Covers complete photogrammetric consultation service which aids in coordination of surface geology for petroleum and mineral studies. *Abrams Aerial Survey Corp.*

IT'S NEW CHECK IT

(15) VALVE LAPPING. New four-page, two-color bulletin explains a method of lapping one surface or two mating surfaces together by applying an irregular motion at right angles to the direction of rotation, eliminating the usual concentric grooves. Describes 10 steps in reconditioning a valve. *Culp Valve Repairing, Inc.*

IT'S NEW CHECK IT

(16) LOADING ASSEMBLIES AND SWING JOINTS. New four-page folder covers Dome-type truck loading assemblies, swing joints, foot valves, union check valve, and fill boxes, for every loading requirement in the petroleum industry. Specifications and price list included. *Oil Equipment Manufacturing Co.*

IT'S NEW CHECK IT

(17) POWDER METALLURGY. New 44-page catalog includes many new sizes of self-lubricating porous-bronze bearings for plain bearings, flanged bearings, and self-aligning spherical-type bearings. Design styles and specifications are covered in first section. Second section includes installation instructions, allowance and load charts, and complete tables of bearing sizes and code numbers. *Keystone Carbon Co., Inc.*

IT'S NEW CHECK IT

(18) INSTRUMENTS for oil and gas production, includes flow meters, pressure recorders, indicating pressure gages, temperature recorders and indicators, and salt-water disposal and specific gravity meters. Complete descriptions, cut-away drawings, and specifications are covered in 14-page bulletin. Booklet is confined exclusively to production instruments. *Foxboro Co.*

IT'S NEW CHECK IT

(19) TYPE R-3 SWIVEL. New bulletin describing the Ideal Type R-3 Swivel for rotary drilling rigs includes a life expectancy chart for the main bearing. Chart is based on a rating of 200 tons at 150 r.p.m. Eight pages carry nine explosion photographs, a blueprint, complete specifications and a detailed description of its construction.. *The National Supply Co.*

IT'S NEW CHECK IT

(20) STANDARD VALVES—examples of the more than 1,500 standard types and sizes made by the manufacturer are described and illustrated in a new 4-page bulletin. Included in bulletin are water pressure reducing valves, single-acting standard altitude valves, integral pilot-type cold-water float valves, and water strainers. *Golden-Anderson Valve Specialty Co.*

IT'S NEW CHECK IT

(21) VALVE CROSS-REFERENCE CHART. A 20-page booklet contains a complete listing of manufacturer's valve numbers in order with their description. Chart is easy to use and is invaluable in helping select the right valve for the right job. *Ohio Injector Co.*

IT'S NEW CHECK IT

(22) MOTOR TRUCK FACTS. New 56-page handbook gives interesting and comprehensive information on motor trucks and 1946 truck highlights. Complete data is emphasized in some 90 charts and tables. *Automobile Manufacturers' Association.*

IT'S NEW CHECK IT

(23) SELF-PROPELLED SERVICING RIG. New leatherette-bound, tabbed technical bulletin covers various models of self-propelled servicing units. Data includes specifications, drawings, and detailed information on all parts of the units. *Waldrip Engineering Co.*

IT'S NEW CHECK IT

(24) STANDARD BUILDINGS. A seven-page bulletin describes and illustrates with line drawings oil industry buildings designed for maximum utility and flexibility. Includes complete coverage of additional features and alternate wall panels for various buildings. *Luria Engineering Corp.*

IT'S NEW CHECK IT

(25) VISIBLE VACUUM CHLORINATOR. New technical publication treats chlorinators used to improve efficiency of heat exchanger units, to increase flood flow in pipes and sand, and to control slime in well floodings. Illustrations include operating drawing and installation diagram. Stresses features of design. *Wallace & Tiernan.*

IT'S NEW CHECK IT

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MODERN Rotary DRILLING

Many Factors Affect Life of Wire Lines on Drilling Rigs

WIRE lines, in the hoisting system of a rotary rig, has an important bearing on the economics of drilling operations, because the line wears out in service and must be replaced at intervals. There are, however, many factors affecting the useful life of the line which are within the control of the operators. Educational campaigns conducted by the A.P.I. committee on standardization of wire rope and by the different wire-rope manufacturers have done much to direct attention of operators toward these factors and have brought about marked improvement in service and usefulness of wire line.

In this and in the succeeding three installments, factors affecting the service of the line will be summarized.

Of the factors which affect the useful life of a wire line, the most important are the following: (1) magnitude and type of loadings, (2) speed of operation, (3) diameter of drum and manner of spooling of line on the drum, (4) diameter of sheaves and diameter and state of repair of the sheave grooves, and (5) lubrication.

Loads and Speeds

Conditions under which the rotary drilling line is operating require that a factor of safety of not less than five should be applied, which means that the working load should not exceed one-fifth of the breaking strength of the rope. It should be remembered that this safety factor is to be applied to the fast line, in which there are accumulated frictional forces of sheaves and the internal friction of the rope.

The dead load handled by the rope is increased by the load resulting from acceleration and deceleration. This additional load, which occurs at the time of starting and stopping of load and at the point of changes of speed, may be calculated from the formula:

$$P = W \frac{A}{32.2}$$

where

P = load of acceleration, lb.
W = total load handled, lb.
A = rate of acceleration, ft. per sec. per sec.

It may be seen from this formula that while the acceleration load is relatively small for moderate rates it may become a definite importance for high rates. For a rate of acceleration or deceleration of 16 ft. per second per second, for instance, the dead load is increased by approximately 50 per cent; for a rate of 32 ft. per second per second the load is approximately doubled. Too rapid a pickup of the load may, therefore, reduce the safety factor to a dangerous limit.

Excessive speeds, particularly with light blocks, may cause uneven spooling of the line on the drum, which is one of the most important factors contributing toward wear of lines. Excessive speeds promote fatigue breaks, may result in occurrence of shock loads, and have destructive effects on the protective lubricants of the rope. Speed of 4,000 ft. per minute is considered as a maximum.

Points of Wear

At the time of starting a load, the dead weight and the acceleration load are increased by the friction load. In a system of sheaves, the latter is at its maximum (friction load) value at the time of start of rotation. Therefore, disregarding special and shock loads, the peak loading of the line occurs repeatedly at certain specific points of the cycle of operation of the line; when the traveling point is at the lowest and highest positions during the round trip, and when it is about 40 ft. from the derrick floor when single joints of pipe are broken out, or are added to the string.

The three main points of wear of the line are at the drum, at the fast sheave of the traveling block, and at the crown block. Since the peak loadings occur when the same parts of the line are in contact with the points of maximum wear, it follows that certain parts of the line are subjected to concentrated wear. The common practice of cutting off line and shifting its position, has as its purpose the distribution of the wear.

Diameter of Bends

Stresses which occur in a line as it passes over sheaves or drums are usually referred to as bending stresses, although they include a number of stresses other than bending. They are highly complex and their evaluation is difficult. They are in general inversely proportional to the diameter of the bend and they increase rapidly as this diameter drops below a certain critical value.

Diameter of sheave or drum is of importance not only from the point of view of bending stresses alone but also the radial pressure of the rope on the drum or sheave is directly proportional to the tension in the rope and inversely proportional to the diameter of the sheave or drum. As this diameter decreases, the force, which tends to crush the rope against the unyielding surface and cause excessive sheave wear, becomes increasingly larger.

Because of this relationship between the diameter of the sheave and forces acting on the rope, there is for any given construction of the rope certain critical minimum diameter. Use of sheaves with diameters smaller than this critical diameter results in excessive wear of the rope. For commonly used 6-by-9 rope construction, the minimum critical diameter is 30 times the rope diameter, while the recommended diameter is 45 times the rope diameter.

No. 27 in a series by Joseph Zaba, petroleum engineer, Houston

Then Why try to make your own Power

Use Low-Cost Utility Electric Power!

You've bottomed out at 9,000 feet . . . the casing is set . . . and it's time to shoot! A company, specialized in shooting wells is called, because it's the more efficient, economical way of handling the job.

When it comes to power, look to your local Utility Electric Power Company . . . they have the equipment, the technically trained personnel, and the "know-how" to do a better job for you. This dependable power is adaptable to any phase of the oil industry . . . drilling, pipe lines, pumping and refining. The cost is rock-bottom . . . only one monthly power bill to pay.

For detailed information as to your individual power needs, contact the Power Engineer of your local Utility Electric Power Company. He's at your service without cost or obligation.

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PETROLEUM ELECTRIC POWER ASSOCIATION

Box 1498, Oklahoma City, Oklahoma

The Refiner's Notebook

A WEEKLY FEATURE OF THE OIL AND GAS JOURNAL

Fittings for Pumps

Positive Displacement Pumps

Plain fitted.—Abbreviation P.F. Bronze-lined liquid cylinders, iron water pistons, steel rods, bronze or rubber valves, bronze valve seats, guards and springs.

Bronze fitted.—Abbreviation B.F. Bronze-lined liquid cylinders, bronze piston rods, iron water pistons, bronze or rubber valves, bronze valve seats, guards and springs.

Full bronze fitted.—Abbreviation F.B.F. Bronze-lined liquid cylinders, bronze piston rods, bronze water pistons, bronze or rubber valves, bronze valve seats, guards and springs.

Centrifugal Pumps

Plain fitted.—Abbreviation P.F. Steel shaft, iron impellers, bronze impeller bushing rings.

Bronze fitted.—Abbreviation B.F. Bronze of bronze-covered steel shaft, bronze impellers, bronze impeller bushing rings.

Special Fittings

All iron.—Abbreviation A.I. All parts of the pump coming in contact with the liquid to be of either cast or malleable iron. Piston rods or shafts of steel.

All bronze.—Abbreviation A.B. All parts of the pump coming in contact with the liuid to be of bronze. Piston rods of bronze; shafts to be of bronze or of steel, bronze covered.

Cast iron or special lined.—Abbreviation C.I. followed by name of lining used. Liquid cylinder of cast iron lined with material mentioned.

PUMP FITTINGS FOR DIFFERENT LIQUIDS

Liquid—	Condition	Specific gravity	Boiling point (°F.)	Fittings for liquid-end of pump: Centrifugal material	Positive displacement: Material	Valves	Piston packing
Acid, fatty (over 130° F.)	....	....	....	A.B.	A.B.	disk	bronze
Acid, hydrochloric	....	1.21	....	Lead or A.B.	A.B.	disk	lead
Acid, sulfuric	conc.	1.842	640	A.I.	A.I.	disk	iron
Acid, sulfuric	dilute	....	....	A.B.	A.B.	disk	bronze
Acid, sulfuric	fuming	1.89	....	A.I.	A.I.	disk	iron
Acid, sulfuric	60° Be.	1.71	....	A.I.	A.I.	disk	iron
Acid, sulfuric	40° Be.	1.38	....	Lead or A.B.	A.B.	disk	bronze
Alum	....	1.64	....	P.F.	P.F.	disk	hemp
Aluminum sulfate	....	2.71	....	F.B.F.	F.B.F.	disk	bronze
Ammonia	33.5	0.6-0.62-28.3	....	A.I.	A.I.	disk	iron
Aqueous ammonia	....	....	....	A.I.	A.I.	disk	iron
Asphaltum	hot	0.98-1.4	....	....	A.I.	ball	iron
Benzene (from coal tar)	....	0.88	176	A.I.	A.I.	disk	iron
Benzine (pet. ether)	....	0.64-0.68	....	F.B.F.	F.B.F.	disk	rawhide
Brine, salt	3%	1.02	....	F.B.F.	F.B.F.	disk	hemp
Brine, salt	over 3%	1.02-1.20	....	A.B.	A.B.	disk	hemp
Carbonate of soda	....	2.43-2.51	....	....	A.I.	disk	iron
Caustic soda	....	2.13	....	....	A.I.	disk	iron
Creosote	....	0.93	....	....	F.B.F.	disk	bronze
Crude oil—asphaltic	....	....	....	P.F. or B.F.	P.B. or B.F.	varies with temp. and pressure	
Crude oil—paraffinic	....	....	....	P.F. or B.F.	P.B. or B.F.	varies with temp. and pressure	
Ethylene chloride	....	1.28	....	Lead	C.I. lead line	disk	lead
Fuel oil	....	....	....	....	P.F. or B.F.	disk	iron
Gasoline	....	0.68-0.75	158-194	....	F.B.F.	disk	rawhide
Heptane	....	0.68	209	....	F.B.F.	disk	bronze
Kerosine	....	....	....	P.F.	P.F.	disk	iron
Lard	hot	0.92	....	....	A.I.	ball	iron
Lye	....	....	....	....	A.I.	disk	iron
Lube oil	hot	....	....	A.I.	A.I.	disk	bronze
Lube oil	cold	....	....	varies	varies	ball or wing	bronze
Paraffin	hot	....	662-806	....	F.B.F.	disk	bronze
Sea water	....	1.03	....	F.B.F.	F.B.F.	disk	hemp
Sewage	....	....	....	F.B.F.	F.B.F.	special	hemp
Tar	hot	....	....	....	A.I.	ball	iron
Water, fresh	....	1.0	212	B.F.	B.F.	disk	hemp
Water, sea	hot or cold	1.03	....	F.B.F.	F.B.F.	disk	hemp
Water, distilled	....	1.0	212	F.B.F.	F.B.F.	disk	hemp
Water, sulfur	....	....	....	F.B.F.	F.B.F.	disk	hemp

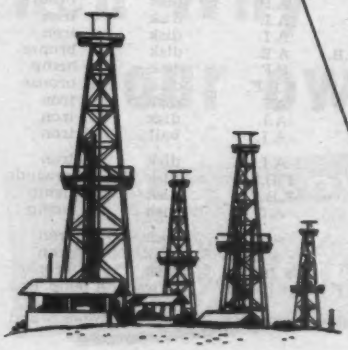
No. 151 in a series by W. L. Nelson, professor of petroleum refinery engineering, University of Tulsa

Twin Disc Model PH 42" Clutch (three-plate construction)

Higher Torque at lower speeds

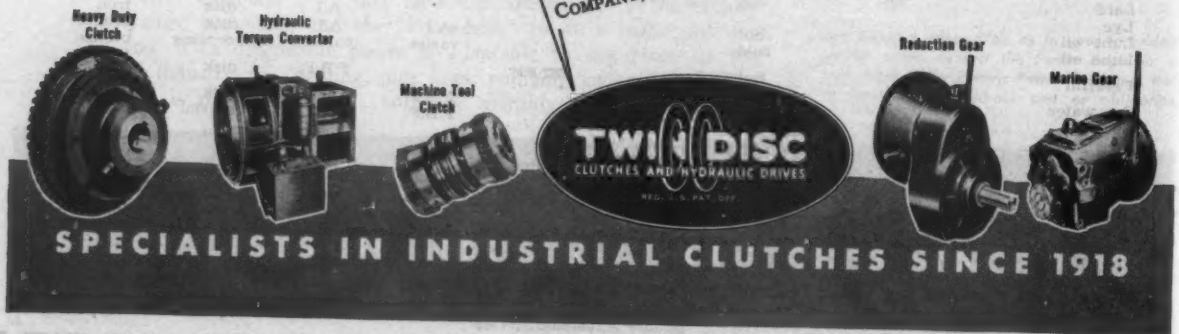
Greatly increased torque capacities for lower speed operations . . . below 100 rpm . . . have been attained by the Twin Disc Clutch Company in its new Model PH Air-actuated Clutch.

Ideal for drum drives and numerous other oil field jobs, the Model PH Clutch is offered in the 42" size with both two and three-plate construction. The three-plate clutch has a working torque capacity of 89,550 foot-pounds. The Model PH supplements the widely-used Twin Disc Model P Air-actuated Clutch, offered in sizes from 14" to 36". Horsepower capacities for the complete line now range from 75 to 1325 hp.



The new Air-actuated Clutch incorporates all the proved features and advantages of the smaller Model P Clutch. These include a high degree of resistance to heat deterioration . . . minimum maintenance and long wear-life attained by rugged construction and design which utilizes relatively few moving parts . . . elimination of lubrication problems and of need for adjustment due to friction wear.

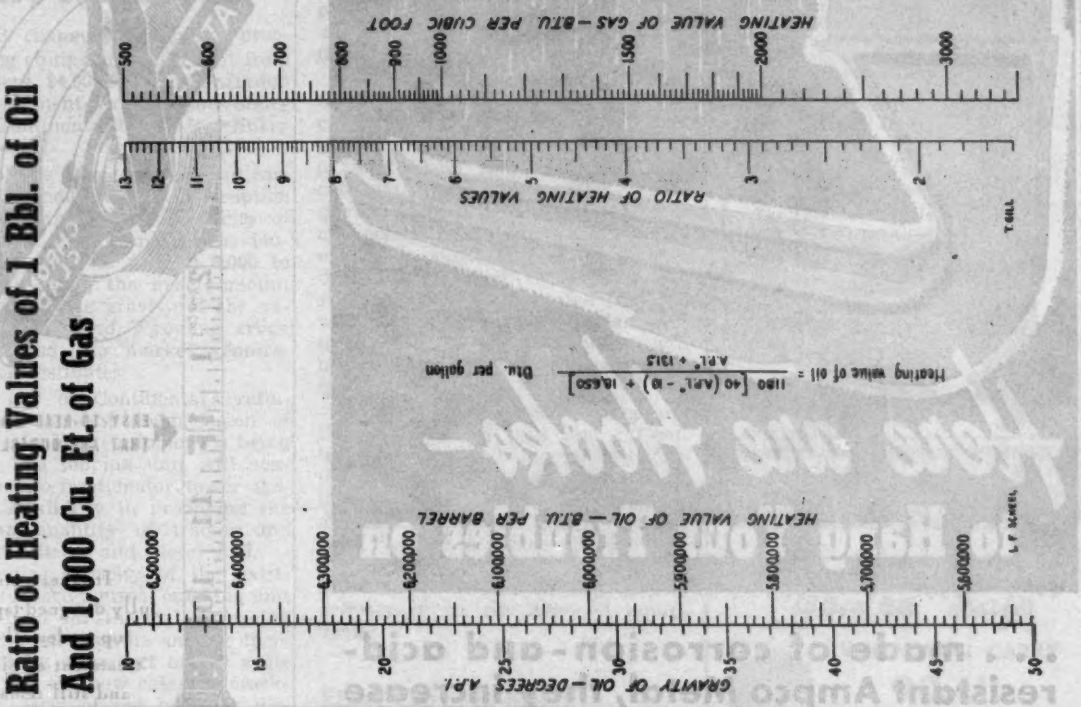
Write the Twin Disc Clutch Company, Racine, Wisc., for the new Bulletin No. 139A which covers the complete line of Air-actuated Clutches including the new Model PH 42" units. TWIN DISC CLUTCH COMPANY, Racine, Wisconsin (Hydraulic Division, Rockford, Illinois).



ENGINEERING fundamentals

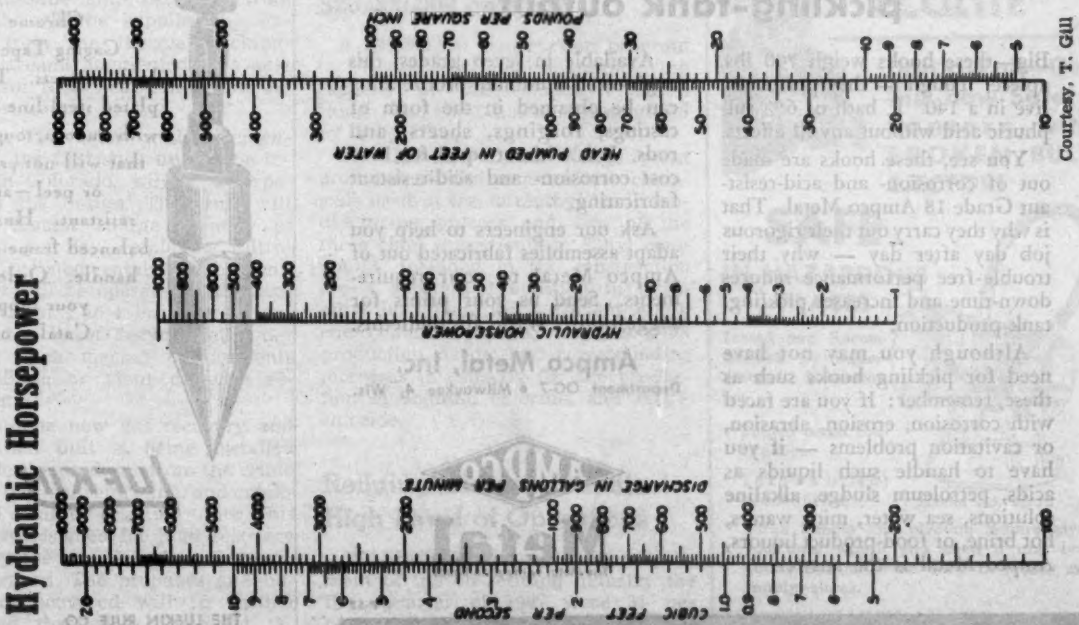
This is the seventh of a series of useful graphs, alignment charts, and fluid-flow curves presented through the courtesy of the Southern California Meter Association.

Ratio of Heating Values of 1 Bbl. of Oil And 1,000 Cu. Ft. of Gas



$$\text{Heating value of oil} = \frac{1180\,[40\,(\text{A.P.I.}^\circ - 10) + 18{,}650]}{\text{A.P.I.}^\circ + 1315} \quad \text{Btu. per gallon}$$

Hydraulic Horsepower


POUNDS PER SQUARE INCH
HEAD PUMPED IN FEET OF WATER
HYDRAULIC HORSEPOWER
DISCHARGE IN GALLONS PER MINUTE
CUBIC FEET PER SECOND

Courtesy, T. Gill

Here are Hooks— to Hang Your Troubles on

. . . made of corrosion-and acid-resistant Ampco Metal, they increase pickling-tank output

Big—these hooks weigh 700 lbs. apiece. Tough — they practically live in a 140° F. bath of 6% sulphuric acid without any ill effects.

You see, these hooks are made out of corrosion- and acid-resistant Grade 18 Ampco Metal. That is why they carry out their rigorous job day after day — why their trouble-free performance reduces down-time and increases pickling-tank production.

Although you may not have need for pickling hooks such as these, remember: If you are faced with corrosion, erosion, abrasion, or cavitation problems — if you have to handle such liquids as acids, petroleum sludge, alkaline solutions, sea water, mine waters, hot brine, or food-product liquors, Ampco Metal is the answer.

Available in seven grades, this engineered aluminum bronze alloy can be obtained in the form of castings, forgings, sheets, and rods. It is without equal for low-cost corrosion- and acid-resistant fabricating.

Ask our engineers to help you adapt assemblies fabricated out of Ampco Metal to your requirements. Send us your prints for suggestions. Write for bulletins.

Ampco Metal, Inc.
Department OG-7 • Milwaukee 4, Wis.

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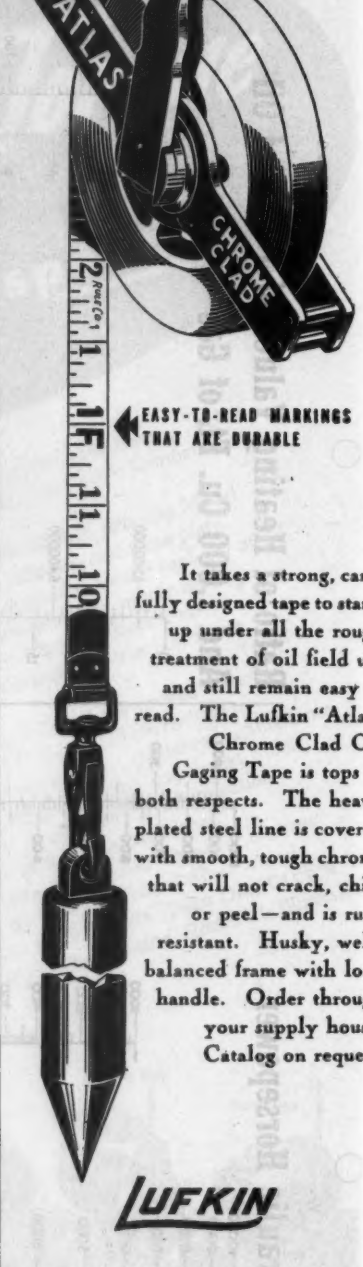
Metal
The Metal without an Equal

P-17

TOPS IN TOUGHNESS, RIGHT for readability



It takes a strong, carefully designed tape to stand up under all the rough treatment of oil field use and still remain easy to read. The Lufkin "Atlas" Chrome Clad Oil Gaging Tape is tops in both respects. The heavy plated steel line is covered with smooth, tough chrome that will not crack, chip, or peel—and is rust-resistant. Husky, well-balanced frame with lock handle. Order through your supply house. Catalog on request.

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SAGINAW, MICHIGAN, New York City

REFINING

Continental Enlarging Refinery at Denver

MAJOR changes in exjsting processing equipment will result from the present $4,000,000 modernization and enlargement program now under way at Continental Oil Co.'s refinery in Denver.

Most of the changes are being carried out without serious interruption of plant operations. The capacity of the refinery will be more than doubled to allow it to process 8,000 to 10,000 bbl. daily, the exact amount to depend on the gravity of the various Colorado and Wyoming crude available and the market requirements for distillates.

From one of Continental's refineries recently shut down, much of the crude topping equipment is being secured. The topping unit will consist of a two-fractionator tower system for flexibility in producing the maximum quantity of tractor and burner distillates and diesel fuel.

The entire capacity of the existing two-furnace thermal cracking unit will be used for thermal reforming of straight-run naphtha and for thermal cracking of a part of the cycle gas oil from the new catalytic cracking unit. Most of the heat for distilling gasoline and distillates from the crude will be supplied by exchange from the thermal-cracking-unit oil streams augmented by a new furnace for final heat control on the crude distillation.

A new Thermofor catalytic cracking unit, the first such unit to be installed in Colorado, will be incorporated in the design. This unit will have a reactor charge capacity of 6,600 bbl. per day, employing Filtrol natural pelleted catalyst. The unit normally will be operated with a recycle ratio of 1 to 1 but may be operated at a lower recycle ratio, depending upon market requirements for distillate or plant capacity requirements.

A complete new gas recovery and stabilization unit is being installed to handle the products from the crude topping thermal reforming, and cracking, and catalytic-cracking units. This section is designed for high recovery of propylene and heavier hydrocarbon fractions. The propanes and butanes so recovered will be further processed through a Universal Oil Products Co. type catalytic polymerization unit for the conversion of the propylene and butylene fractions to additional high octane polymer gasoline while the unconverted saturate propane and excess butane fractions will be separated and sold for liquefied petroleum gas.

The Denver refinery is one of the foremost electrified plants in the country. Substantially the only steam generated and used is that generated as waste heat from the Thermofor catalytic cracking unit, which is adequate for process distillation heating and operating compressors and blowers. Only sufficient boiler capacity is being installed to standby the steam normally generated by the waste heat boilers. The balance of the plant's pumping equipment will be motor driven by purchased electricity.

Design of the crude topping and thermal cracking unit and off-battery equipment is being done by Continental's engineers, while design of the remaining processing equipment and erection of the plant is being done by The Lummus Co. Completion of the program is not expected until the fall of 1948 because of slow delivery of certain items of equipment.

Ethyl Corp. to Spend $20,000,000 on Plant

A $20,000,000 construction program to provide additional manufacturing capacity at the company's Baton Rouge, La., plant, has been announced by Ethyl Corp.

The 200-acre Baton Rouge plant produces all the intermediate chemicals used in the tetraethyl lead manufacturing process and two of the three chief ingredients in Ethyl compound. Included in the construction are a substantial addition to tetraethyl lead facilities, sufficient ethylene dichloride capacity to match peak production needs, and corresponding increases in capacity for the production of sodium, chlorine, and ethylchloride.

Refining Dividends Reflect High Level of Operations

WASHINGTON. — Dividend payment of the oil-refining industry the first quarter of 1947 were 31 per cent ahead of the same period of 1946, according to the U. S. Depart-

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"TRANSPARENT"
DROP FORGED STEEL
LIQUID LEVEL GAGES

Used to observe color and density of liquids under high pressures and/or temperatures. Construction exceptionally sturdy. Made of alloy temperature resisting steel, and are highest quality throughout. Liquid chamber made from solid block of steel to assure perfect alignment and rigidity. Conform with A.P.I.—A.S.M.E. requirements.

The "Transparent" is one of the complete line of Penberthy gages that meet every liquid level gage requirement.

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Ecolite No. 90-UL

- Sealed beam construction.
- Throws bright beam 1500 ft.
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ECONOMY ELECTRIC LANTERN COMPANY
3100 W. Cherry St. Milwaukee 8, Wis.

ment of Commerce's Office of Business Economics.

Publicity reported payments by the refining industry totaled $74,400,000 in the period, including $20,000,000 in January, $8,700,000 in February, and $45,700,000 in March. For the manufacturing group as a whole, payments were 24 per cent over the 1946 quarter.

Stone Texas City Plant Bought by Pan American

ARRANGEMENTS have been completed by Pan American Refining Corp. for the purchasing of the 7,500-bbl. daily capacity refinery of Stone Oil Co. at Texas City, Tex.

The Stone refinery is adjacent to Pan American's own refinery at Texas City and has been operated on a leased basis by Pan American Refining for the last 4 years.

The approximately 20-acre Stone plant consists of a 6,000-bbl. daily continuous crude fractionator, several shell stills, specialty units, and related tankage. Frank J. Smith, who was recently transferred to New York to head the chemicals division of Pan American Refining, said it is planned to continue to employ the Stone plant facilities in the production of specialty products as in the past.

The Stone plant was heavily damaged in the Texas City fire and explosion in mid-April. Smith said the damaged equipment will be repaired or replaced as soon as possible.

No consideration involved in the purchase was disclosed. Pan American is a subsidiary of Pan American Petroleum & Transport Co. which is a part of the Standard Oil Co. (Ind.) group. The present Pan American Refining plant in Texas City has a crude capacity of 100,000 bbl. daily. It received no serious damage in the April disaster.

Associated Refinery Offered for Sale

A 100-octane-gasoline refinery built in 1943 at Beckett, Okla., near Duncan, has been offered for sale or lease by War Assets Administration.

Leased and operated during the war by Associated Refineries, Inc., the installation has a daily rated capacity of 5,100 bbl. of aviation-grade gasoline. Total reported cost to the Government was $15,150,000. WAA said sealed proposals must be received by the WAA regional office, Tulsa, not later than 11 a.m., August 4.

Charleston Refinery To Get New Pipe Still

The site is now being cleared at Charleston, S. C., for the construction of a new atmospheric pipe still at Standard Oil Co. of New Jersey's Charleston refinery.

Construction is scheduled to commence at the end of June, and the schedule calls for completion by the end of this year. Construction is being done by Jones & Laughlin Supply Co. The new unit will charge 6,500 bbl. daily of asphaltic-base crude oil and will replace existing shell steel equipment. Total crude charge capacity of the Charleston refinery is listed at 7,000 bbl. daily.

Water-Gas Tar Source Of Many Hydrocarbons

A large number of aromatic and other hydrocarbons have been found in water-gas tar by analysis pentane extraction, vacuum distillation, indices of refraction and other methods, Dr. A. W. Gauger, of Pennsylvania State College, said at a recent American Gas Association meeting in New York.

These hydrocarbons include xylenes, styrene, methyl and dimethylstyrenes, naphthalene and methylnaphthalenes, dimethylnaphthalenes, azulenes, phenanthrene, anthracene, and chrysene, methylethylbenzene, tetramethylbenzenes, indene, and dicyclopentadiene, Gauger reported. Such products are formed by decomposition of heavier or lighter hydrocarbons during the carburetion of water gas, it appears, yielding olefins and polyolefins which polymerize to produce these different and complicated hydrocarbons.

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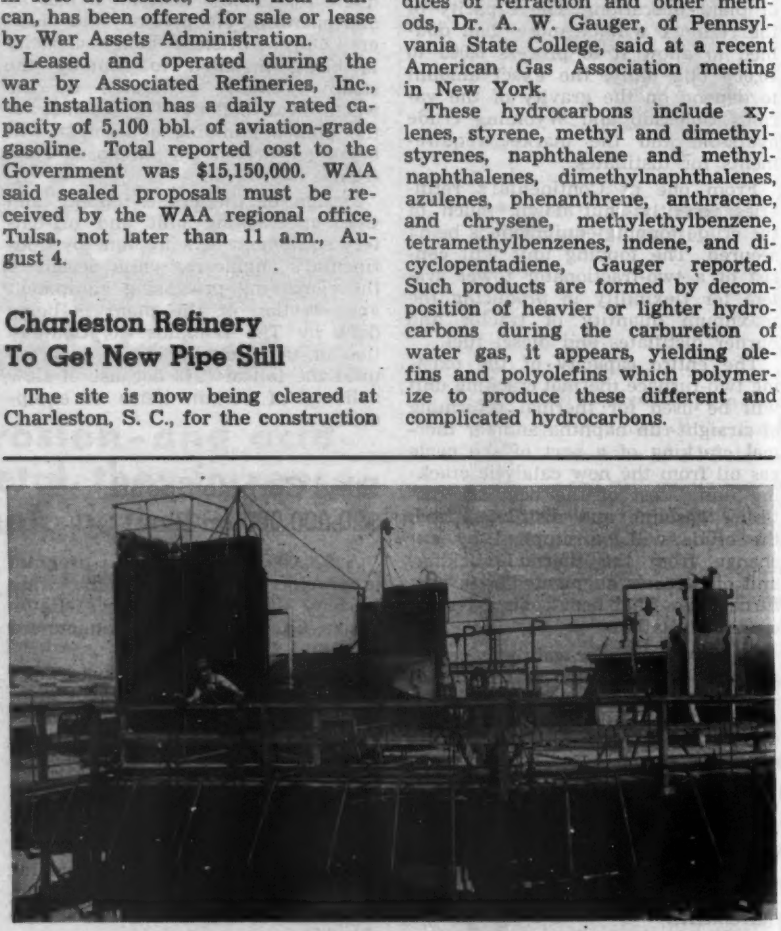


San Francisco naval shipyard's fuel-oil reclamation plant, made entirely of scrap material and processing enough waste oil to cut the shipyard's fuel bill 15 per cent, has paid off $18,426 in its first 5 months of use. H. C. Pilkerton, operating engineer, is shown regulating the flow of reclaimed oil being skimmed from top of one refining pit. The reclamation invention earned its originator, Charles H. Kimball, foreman of the yard's power plant, a beneficial-suggestion award of $250. Kimball's idea centers on a storage lake with a series of steam-heating pipes to raise the temperature of contaminated oils and speed the recovery of usable fuel oil. Previously, the huge problem of disposing of dirty and contaminated diesel, fuel, and other industrial oils had cost the naval shipyard money for hauling away and dumping the oils, Navy officials said. (Official Navy photo)

PIPE LINES

Sinclair Pushes Work On Texas, Ohio Lines

SINCLAIR REFINING CO. has pipe laying operations in progress in Texas and Ohio for products pipe-line projects.

For laying pipe for the Texas system, the contractor, O. C. Whitaker Co., is putting two spreads in the field, one working north from Corpus Christi to Victoria, Tex., and the other starting from Austin to go south to Victoria. This system will extend on completion from Corpus Christi to connect with San Antonio, Austin, and Bryan, Tex. It is scheduled for completion the end of September. It includes the following lines: the 8-in. Corpus Christi-Austin line and the 6-in. Luling-San Antonio line, together totaling 140 miles; and the 85-mile 8-in. Austin-Bryan line. Later this system will connect at Bryan with a products line to be built from Houston to a point between Fort Worth and Dallas. Eventually this system will be extended from the Fort Worth-Dallas area to Kansas City and St. Louis.

In Ohio the construction work has been contracted with Anderson Brothers Corp. which is operating on a program that calls for three spreads in the field. The project consists of 190 miles of 6-in. line from Clinton, Ohio, near Akron, to Youngstown and Steubenville, and a line from Clinton to Cleveland. This will connect with the water terminal at Youngstown which Sinclair operated during the war. This project will complete Sinclair's products-line plan for linking the company's Chicago, Ill., and Marcus Hook, Pa., refineries.

Although a pipe line from Wyoming to Kansas City is reported to have been considered by Sinclair interests for some time, no conclusion has been reached, and at present it is said that there are no definite plans for building such a pipe line.

Chicago Line Starts Nebraska Loop

Construction of a 70-mile 26-in. loop between Wilson, Kans., and Larned area for Natural Gas Pipe Line Co. of America has been completed by the contractor, J. R. Horrigan Construction Co., O. E. Dempsey and Joe Dempsey, operating together as a joint venture. Work was started in March and was finished June 23.

Another loop for this gas company transmitting to Chicago is being started by the same contractors; this consists of 69 miles of 26-in. and crossings for the Little Blue and Big Blue rivers. This loop extends from Unadilla, Neb., to a point 15 miles inside the Kansas line.

Effective use was made during windy weather of a new device for protecting welding known as the "O. D. Windmaster," invented by O. E. Dempsey and manufactured by General Manufacturing Co. It is estimated that as many as 10 days were saved by using it. The contractors applied the Windmaster whenever wind velocity rose above 5 m.p.h. It was found that the device improved the quality of welding and eliminated occurrence of pin holes.

New Pipe-Line Company Formed in Michigan

The Mahoney Contracting Co. is a newly organized Michigan pipe-line construction company with offices in Mt. Pleasant.

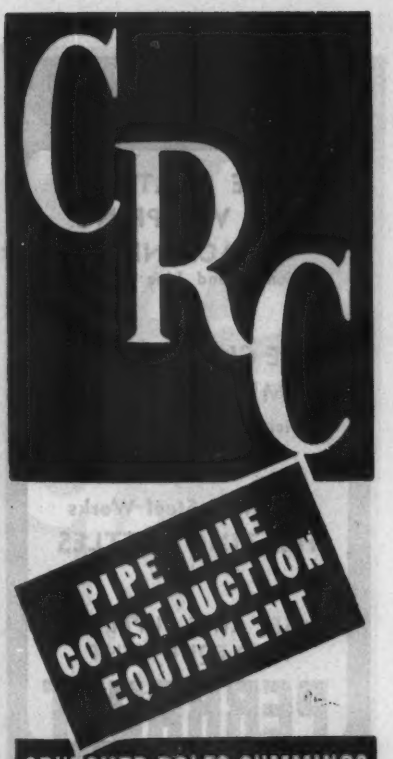
Edward Mahoney is president of the company and other officers are: Harold Fluhart, vice president; Floyd Otteman, secretary-treasurer; and Harlod Finnerty, field superintendent.

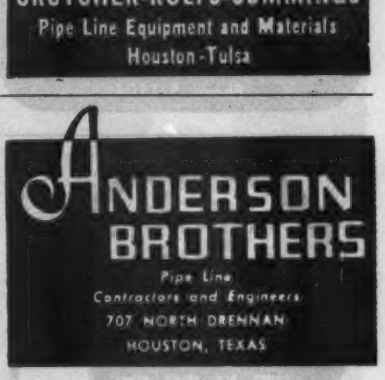
The company has recently completed work for the Michigan Consolidated Gas Co. and is now doing the stringing and welding on Michigan Gas Storage Co.'s 37-mile, 16-in. pipe line which runs from Cranberry Lake gas-storage field to a point east of Mt. Pleasant.

Stanolind Finances Construction Program

Bruce C. Clardy, president of Stanolind Pipe Line Co., a wholly owned subsidiary of Standard Oil Co. (Ind.), announced arrangements with Guaranty Trust Co. of New York and four participating banks for a credit of $55,000,000 to repay outstanding short-term indebtedness to banks and to aid in financing the company's major construction program.

The money will be taken down in installments starting December 22, 1947, and the loan agreement provides that all of the money will be





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Not just Contractors but

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Morrison Bros. pipeline gangs are given every known convenience for "Pipeline Perfection." On Morrison Bros. spreads are Mobile Machine Shops equipped with lathes, compressor, light generator and machine and utility tools. Service Trailers carry any fuel needed on the line. This unit is ready to answer the call of the two-way radio for on-the-spot refueling and repairs. This type of service helps to make "Pipeline Perfection."

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P. O. BOX 6106 ODESSA, TEXAS PHONE 1660

taken down on or before October 1, 1948. A commitment fee at the rate of ¼ of 1 per cent per annum will be paid the banks for the unused portion of the credit.

The loan will run for 10 years from December 22, 1947, and will bear interest at the rate of 2 per cent per year. Repayments starting in the third year will retire approximately 60 per cent of the loan by the end of the tenth year.

One-Third of Lakin-Denver 240-Mile Line Completed

About 80 miles of Colorado Interstate Gas Co.'s 240-mile line from Lakin, Kans., to Denver has been completed, according to G. F. Brunston, general superintendent.

The 20-in. line is scheduled for completion September 1. Initial capacity will be 100,000,000 cu. ft. of gas, and total cost is expected to be $12,500,000, including a $2,000,000 compressor station at Lakin.

The first phase of the construction which started from Lakin May 24, crossed the Colorado-Kansas line about June 5 and work is now under way in Kiowa County. About 60 miles of line have been laid. Phase two started near Hugo, east of Colorado Springs, and has progressed about 20 miles into Elbert County.

All surveys have been completed, all pipe unloaded and stacked, and 90 per cent of the right-of-way acquired. Construction of the Lakin compressor station has started, and a worker's camp is being built. The construction of the project has been contracted by J. R. Horrigan Construction Co.

Interstate Honors Beckner At Glenn Pool Station

Loren F. Kahle, president, Interstate Oil Pipe Line Co., presented Arthur C. Beckner, chief engineer, Glenn Pool, Okla., station, with the official service emblem of a 40-year man, a gold lapel button with three diamonds, at a ceremony on the station lawn on the evening of June 24. This is the fourth 40-year emblem presentation made by the company; the only other recipient of this emblem now active in the company's operations is S. W. Day, vice president, in charge of the southern division.

Bruce Ramsey, vice president in charge of the northern division, pointed to certain significant data in addressing the gathering at the presentation ceremony. Between the building of the Glenn Pool station in 1913 and May 3, 1947, a grand total of 475,000,000 bbl. has been pumped by the station's facilities. The present installation has 2,100-hp. units with a daily pumping capacity of 120,-

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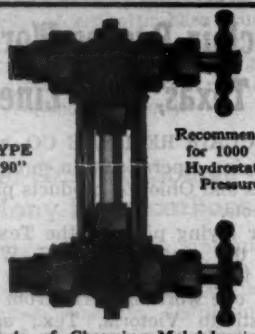

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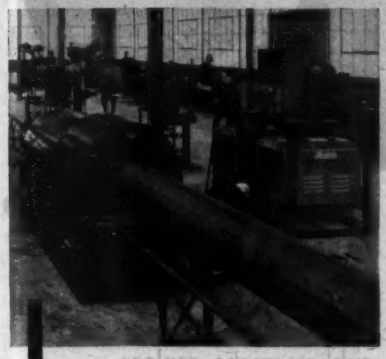

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Pipe protection is more than just a coating and wrapping operation at Pipe Line Service Corporation.

As pioneers in the development of mechanical equipment for protecting pipe, PLS engineers realize their responsibility to the industry in providing pipe protection in step with everchanging requirements. That's why Pipe Line Service designs and builds all their own equipment for cleaning, coating and wrapping pipe. Nothing is left to chance to give customers the kind of pipe protection they require.

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000 bbl. Pipe-line capacity into the station, however, is 140,000 bbl. daily. Since the station is the terminal point at which oil is transferred to lines of Ajax Pipe Line Corp., the throughput of the station is limited to the capacity of the double 10-in. Ajax system from Glenn Pool to Wood River, Ill., which is handling batches of three different types of crude: (1) Mid-Continent, (2) West Edmond, and (3) East Texas-Louisiana-Arkansas.

During the record year of 1945, Glenn Pool station pumped an average of slightly more than 85,000 bbl. daily. Record throughput for a 24-hour day was 95,175 bbl. on August 8, 1945. The station is now averaging 83,000 bbl. daily (2,500,000 bbl. per month). In addition to the Arkansas, North Louisiana and East Texas crudes, the station pumps into Ajax system crudes from south Oklahoma, Oklahoma City, West Edmond, Crescent, and Kansas.

Crude Pipe-Line Volume Up for First Quarter

Crude-oil pipe-line movements gained 6.5 per cent in the first quarter of 1947 during which 44 companies moved 522,717,160 bbl. of oil and earned transportation revenue of $68,717,486, according to an Interstate Commerce Commission report.

Humble Pipe Line Co. was the largest transporter, both from a volume and a revenue standpoint. It carried 59,093,721 bbl. of oil for a revenue of $7,504,702. Second place in point of revenue went to Stanolind Pipe Line Co. with a net of $6,275,608 and 27,568,717 bbl. moved. Gulf Refining Co. and Magnolia Pipe Line Co. reported 33,750,055 and 34,050,228 respectively. Twelve companies showed a decrease in revenue as contrasted with 32 showing an over-all increase of 6.4 per cent.

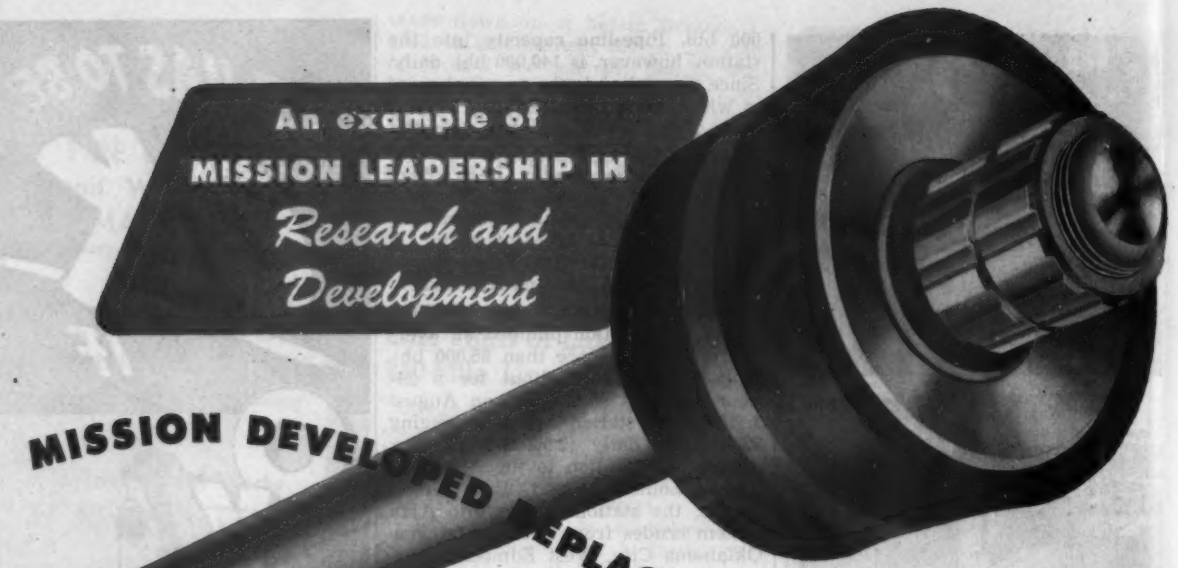
Cleveland Concern Buys Portion of Canol Project

Sale of "Parcel B," most inaccessible portion of the Canol project, for $700,000 to U. S. Truck Sales Co., Cleveland, has been announced by Charles B. Jones, field commissioner for Canada and North Atlantic areas of the Office of the Foreign Liquidation Commissioner.

Parcel B is located along the road extending from Norman Wells to Whitehorse, through subarctic terrain. The contract provided for immediate payment of $35,000, with the remaining $665,000 to be paid by August 5.

The 580-mile section of the pipe line was built at a cost of $9,000,000. Previous bids, highest of which was $528,000, were rejected in April.

An example of
MISSION LEADERSHIP IN
Research and Development



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With Mission you reduce piston renewal costs three ways: (1) It's easier to replace piston rubbers only because you don't have to remove the piston from the rod. (2) It's cheaper because you save the cost of the piston body. (3) Long life rubbers make replacement less frequent. This means there is less shut-down time when Mission Pistons are used.

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New Mission Rubbers installed and piston is ready for another long run at a fraction of the cost of a new piston.

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Mission Pistons

NATURAL GAS

FPC Seeks Agreement On Panhandle Capacity

WASHINGTON.—The Federal Power Commission last week looked forward to an early agreement between distributing companies allocating the available capacity of Panhandle Eastern Pipe Line Co.'s system for the coming winter.

The commission extended the effective period of emergency service rules and regulations approved earlier, and said it is hoped complete agreement between distributing companies dependent on Panhandle Eastern will be worked out. Subcommittees named at previous conferences attended by representatives of distributing companies, FPC, state regulatory agencies, and Panhandle Eastern, are working on the allocation problem, and their studies will form the basis of discussion at a conference in July.

In an announcement of the extension of the earlier rules, FPC said: "Estimates of firm requirements of Panhandle's customers indicate peak-day requirements for the winter of 1947-48 will approximate 518,000,000 cu. ft. daily. Panhandle has estimated its delivery capacity for the winter season at 425,000,000 cu. ft. daily. . . .

"Although 20,000,000 cu. ft. daily from the Big Inch lines was allocated to Panhandle, the estimates clearly indicate the Panhandle system cannot meet the requirements of its attached customers during the coming winter and that the excess of requirements over delivery capacity will be greater than that experienced during the winter season of 1946-47."

The commission said it will establish rules governing winter deliveries at a hearing in Washington August 18 in the event Panhandle Eastern fails to file "reasonable and nondiscriminatory emergency service rules" acceptable to the commission.

United Asks Permit for 20-In. Texas Gas Line

WASHINGTON.—United Gas Pipe Line Co., Shreveport, has filed an application with the Federal Power Commission for authority to construct pipe-line facilities to augment the delivery capacity of its system in the Dallas area and to transport, sell and deliver natural gas to Texas Eastern Transmission Corp. near Longview, Tex.

The company estimated construction costs at $1,730,000. The application stated United Gas proposes to construct approximately 33 miles of 20-in. gas transmission line from Carthage field, Panola County, Texas, to a point near Longview for the purpose of reinforcing and augmenting the delivery capacity to make more gas available in the Dallas district west of Longview, to compensate for the decline in delivery capacity from the Willow Springs and Hawkins fields and to provide for anticipated increased demands in that area.

In addition the company proposed to transport through the 20-in. line approximately 25,000,000 cu. ft. of gas daily for Texas Eastern Transmission from the gasoline plant of Lone Star Gas Co. in Carthage field, and to sell to Texas Eastern approximately 100,000,000 cu. ft. of gas per day at a delivery point to be established near the terminus of Texas Eastern's line near Longview. Approximately 9 miles of 10-in. lateral line to connect with the gasoline plant of Lone Star were included in the proposal.

No contracts have as yet been entered into in connection with the construction, the company said, adding that pipe has been ordered and its delivery promised in August.

Bill Signed to Promote Carthage Ratable Taking

AUSTIN.—Gov. Beauford Jester of Texas has signed a bill designed to promote ratable taking of gas from all leases in Carthage field, East Texas.

Jester said he hoped the bill would encourage ratable take but that could not be accomplished until all gas-producing wells are provided pipe-line connections.

The bill authorizes the Railroad Commission after notice and hearing to determine lawful market demand of gas to be produced each month and if no waste is occasioned thereby, to permit wells to be produced in excess of the monthly allowable. No well shall in any one month be permitted to produce in excess of twice its allowable or in excess of 25 per cent of the daily capacity of the well.

Any well producing over these amounts for 6 successive months shall be closed until its production and allowable are in balance. Further, the commission on March 1 and September 1 shall restrict production from all over produced wells to bring them into balance within the next 6 months. The commission may permit underproduction for 6 consecutive months and then allow accumulated underproduction to be made up during the next 6-month period.

Kane Gas Co. Buys Stock Control of Company

Pennsylvania Counties Gas Co., a Kane Gas Co. affiliate, has purchased practically all of the Clarion Natural Gas Co.'s stock, it has been announced by Fred W. Young, vice president of Kane Gas Co.

Clarion has 4,000 acres of leases with 70 producing wells at the present time. The new owners plan to use the additional gas to provide additional supplies for the Kane, Pa., area.

Wimberly Elected FPC Vice Chairman

WASHINGTON.—Election of Harrington Wimberly, of Oklahoma, as vice chairman of the Federal Power Commission succeeding Richard Sachse, of California, was announced today by the FPC.

Sachse recently resigned from the commission because of ill health. Wimberly was appointed to the FPC in October 1945 for a term expiring June 22, 1948.

Natural Gasoline

McHugh Granted Delay In Recycling Case

Joseph L. McHugh, Louisiana conservation commissioner, has been granted a delay until July 20 to answer petitions filed by Mid-States Oil Co. and the Renwar Oil Corp. to block plans for recycling natural gas in the Lake St. John oil and gas field.

The recycling plans, sponsored by The California Co. and Carter Oil Co., are opposed by the plaintiffs on the basis that California and Carter would be granted excessive powers and that other firms in the field would be unconstitutionally deprived of property rights. The Louisiana conservation department authorized the recycling plans in March after hearings were concluded. A large plant for the extraction of products is proposed.

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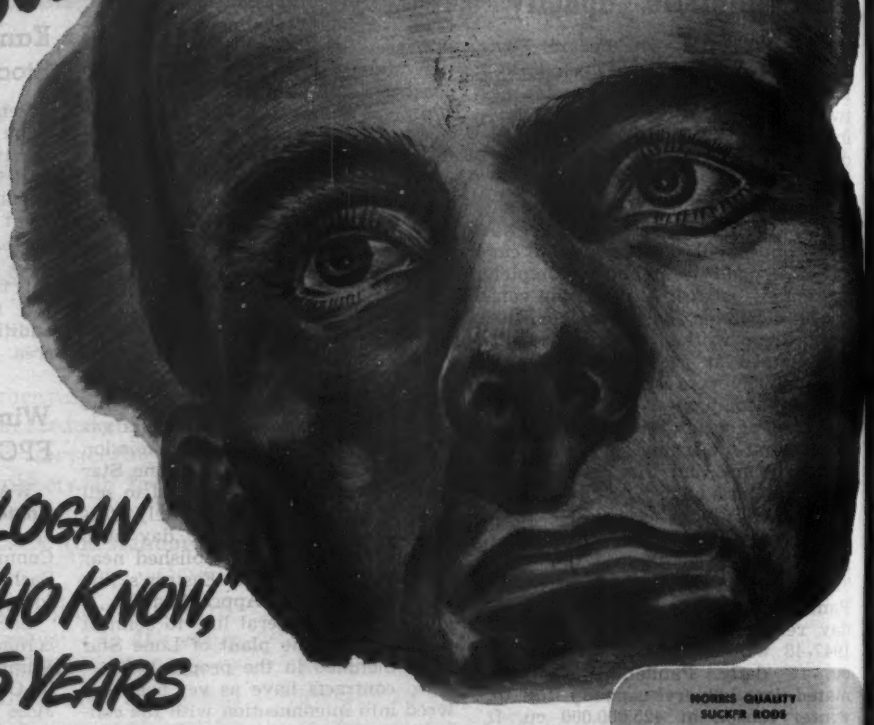

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Exploration and Drilling

Continental Shelf Exploration

IT is too early to forecast exactly what effect the Supreme Court decision in the California tidelands case will have on the exploratory work that has been going on in the Continental Shelf area, particularly around the Gulf Coast. This has been on a far more extensive scale than many people realized.

Exact figures are not available, but it is probable that approximately $9,000,000 to $10,000,000 per year is being spent on geophysical work in the Gulf area. There are between 20 and 25 seismograph parties operating at a total cost of about $1,000 per day, and about half that many gravity-meter parties at around $300 to $400 per day.

This of course takes no account whatsoever of the lease-bonus money the various companies have paid out to Louisiana, or had tentatively committed to bid for Texas leases. Nor does it include any money spent in either constructing drilling platforms, or actually drilling wells out in the water. Then there is the additional substantial amount that has been spent in engineering studies directed toward the design of structures and equipment essential to drilling off shore, away from sheltered water.

Besides the actual engineering design of structural equipment, there is the necessity of making studies of current action, bottom sampling, including in at least some cases, core drilling to get information about the foundation on which the surface drilling structures must rest. All of this has cost a substantial amount of money, and the trend was toward stepping up the pace of preparations, and of course the amount of money spent on such preparations.

All of this was work directly connected with possibilities of developing Continental Shelf oil production. In addition, tentative research plans, only indirectly connected with Continental Shelf work, will, if carried out, result in more geological work along the Gulf Coast. The sedimentary projects of the American Association of Petroleum Geologists research program will involve only comparatively small amounts of money directly, but the indirect consequences may add up to something more important.

For instance, the A.A.P.G. program, even in an uncompleted stage, attracted the attention of the Navy Department. On behalf of the Office of Naval Research, Comdr. Roger Revelle has proposed that this work be coordinated with work desired by the Navy. The proposal, as submitted at the Los Angeles convention, called for the establishment of a Marine Research Laboratory, perhaps under the direction of Rice Institute. This would be similar to the Woods Hole station in Massachusetts and the Scripps Institution of Oceanography at La Jolla, Calif.

The Office of Naval Research and the Division of Oceanography of the Hydrographic Office of the Navy indicated a willingness to support such work to the extent of furnishing an ocean-going ship of the YMS or AMC type, and 38-ft., 100-hp., diesel-type Navy buoy boats, equipped with power winch, and with a cruising radius of about 300 miles. In addition the Navy would contribute about $50,000 cash per year. The remaining cash, estimated at around $100,000 per year, would have to be raised by outside sources, perhaps the American Petroleum Institute, or Rice Institute.

It will be at least 6 months before any action is taken on this project, since such action will hinge on prior developments in financing the A.A.P.G. projects.

However, it is mentioned merely as significant of the general trend toward stepping up the pace of attack on the Continental Shelf problems along a broad front. This accelerating trend has suddenly had the brakes applied by the Supreme Court decision. A period of uncertainty now lies ahead, and uncertainty is a definite deterrent to expenditure of money on anything as risky as Continental Shelf exploration for oil.

At this time the lawyers have not had time to completely digest the detailed decision of the court. After that has been done, there must be conferences at top management levels to decide on what operating policies must be altered under the new conditions. Some unthinking comments have been heard to the effect that it would make very little difference who owned the shelf, the companies desiring to explore it for oil could obtain a lease from one owner as easily as another.

The fallacy in this observation is evident to anyone familiar with the problems of dealing with the federal Government. There exists at this time no statutory authority for any federal agency to make leases. After statutory authority, regulations, and rules must be adopted by an administrative body. These must then be tested for practicality in operation. Considering the pulling and hauling, the cross currents of internal struggles for power and authority among governmental agencies, and the number of agencies involved in offshore water activity, in one form or another, it will be a long time before anyone knows where he stands with regard to federal grants of leases.

The chances are that exploratory work of a geophysical and geological nature will continue along the lines of programs already mapped out, where abandonment at this time would be a poor investment. Erection of drilling platforms and actual drilling is another matter. No further activity along these lines is apt to occur until the situation clarifies. Expansion of geophysical and geological activity will probably stop, at least temporarily. The tempo of the whole Continental Shelf program will certainly slow down.

MICHIGAN

New Wells Increase Garfield Production

SAGINAW.—Newaygo County's Garfield Township oil pool potential jumped about 2,860 bbl. per day in the past week with completion of four more prolific wells that flowed naturally at daily rates of 300, 760, 800 and 1,000 bbl. Developments there featured a week of 20 completions for 9 oil producers, 6 gas wells and 5 dry holes.

Aside from the Garfield production, another good well flowing 336 bbl. per day pinched after acidizing, in the Oceana-Claybanks field, accounted for the bulk of other production. Four other producers, one for 60 bbl. in Allegan County, one for 12 bbl. in Ottawa and two for a combined pumpage of 50 bbl. were on the list. Production for the six gas wells added up to a little less than 26,000,000 cu. ft. per day.

A feature of the Claybanks well, tenth producer in the field, was its depth, 1,752 ft., about 100 ft. deeper than the other wells. The well is Carter Oil Co. 1 Hoffman in Section 15.

MICHIGAN SUCCESSFUL WILDCAT

Montcalm County, Montcalm Township: Ashby Oil & Gas Co. 1 Lewis Wilson

Hydrogen (H_2S) Sulfide Gas Filter

Replaceable Cartridge Type

Accurate operation of indicating and measuring equipment is assured through use of this protective filter. Replaceable cartridge filter is designed to remove Hydrogen Sulfide and Carbon Dioxide and to prevent freezing. Hydrogen-Sulfide acids and other harmful substances will not come in contact with delicate instruments.

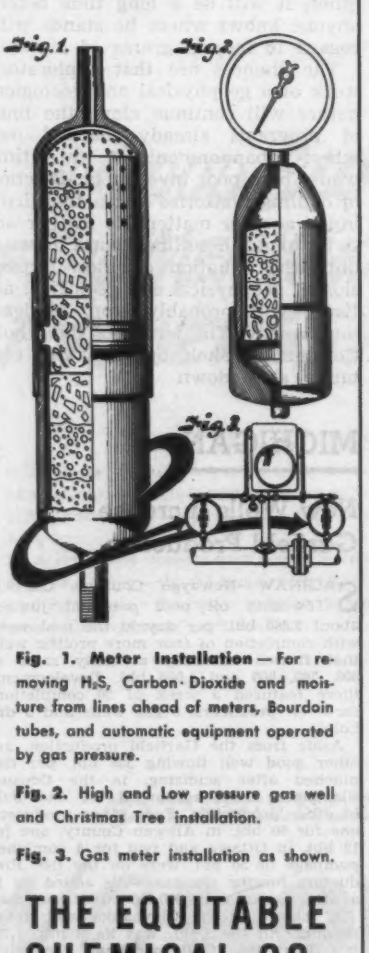

Fig. 1. Meter Installation — For removing H_2S, Carbon Dioxide and moisture from lines ahead of meters, Bourdoin tubes, and automatic equipment operated by gas pressure.

Fig. 2. High and Low pressure gas well and Christmas Tree installation.

Fig. 3. Gas meter installation as shown.

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et al, SW NE NE 9-10n-8w, 2,740,000 cu. ft. of gas, TD 1,088 ft.

MICHIGAN WILDCAT FAILURES

Allegan County, Heath Township: Wayne C. Prather 1 Richard Folsom, NE SE SE 17-3n-14w, dry in Traverse lime, TD 1,480 ft.

Ottawa County, Crockery Township: Rex Oil & Gas Co. 1 Charles Gray, SW NE SW 29-8n-15w, dry in Traverse lime, TD 1,831 ft.

SOUTHWEST TEXAS

Successful Wildcats Open Two New Pools

CORPUS CHRISTI.—Santa Clara Oil Co. and John E. Camp & Sons 1-C Jas. F. Welder Heirs, located in J. Poitevent Survey 221, 13 miles northwest of San Diego and 3 miles south of Strake field, Duval County, opened the new Squire oil field. Drilled to a total depth of 3,277 ft., with top of pay at 3,274 ft., this well flowed a potential of 105 bbl. of oil per day through a 10/64-in. choke, gas-oil ratio 180, with tubing pressure 230 psi., casing pressure 400 psi., and gravity 24.8°. Production is through open hole with 5½-in. casing set at 3,273 ft.

A new gas pool, Edroy field, San Patricio County, was opened by Southern Minerals Corp. 1 M. O. McGloin in San Patricio De Hibernia Grant, 2½ miles west-northwest of Edroy and 3½ miles east-northeast of San Patricio. Total depth is 6,340 ft., with perforations for completion at 5,955-61 ft. On potential test it flowed 3,195,000 cu. ft. gas per day through a ¼-in. choke. Estimated open flow is 330,000,000 cu. ft. gas per day. Working pressure 2,150 psi.

In Aransas County, 4½ miles north of Rockport, William Herbert Hunt Trust Estate 1 Spencer-Crane, wildcat test, recovered 3,000 ft. of 43°-gravity oil on a drill-stem test at 7,131-41 ft. Operators are running an electric log to approximately 8,350 ft. This test is expected to open a new field.

Magnolia Petroleum Co. 2 L. Russell, in Lot 11, Ed. G. Lassiter Subdivision of El Paisano Grant, Jim Wells County, in Wilson area, showed for a gas-condensate well on drill-stem test at 7,861-68 ft., where it recovered 210 ft. of condensate with 570 ft. of water cushion and condensate and 60 ft. of mud in 15 minutes, using ¼-in. chokes. Operators are now drilling ahead.

Newman Bros. and Skinner & Eddy Corp. 1-B South Texas Syndicate, discovery well 2 miles southwest of Greens Bayou field, McMullen County, made a potential on pump of 48.36 bbl. per day of 18.36°-gravity oil. Production is from sand topped at 2,286 ft.

SOUTHWEST TEXAS SUCCESSFUL WILDCATS

Duval County, New oil pool, Squire—Santa Clara Oil Co. and John E. Camp & Sons 1-C Jas. F. Welder Hrs., in J. Poitevent Sur. 221, 13 mi. NW of San Diego and 3 miles of Strake field, top pay 3,274 ft., Government Wells sand, TD 3,277 ft., 5½-in. casing set at 3,273 ft., no perforations, IP: 105 bbl. oil per day through a 10/64-in. choke, gas-oil ratio 180, TP 230 psi., CP 400 psi., gravity 24.8°, no water.

San Patricio County: New gas pool, Edroy —Southern Minerals Corp. 1 M. O. McGloin in San Patricio De Hibernia Grant, 2½ mi. N NW of Edroy and 3½ mi. E NE of San Patricio, TD 6,340 ft., perf. 5,955-61 ft., IP: 3,195,000 cu. ft. gas per day through a ¼-in. choke, estimated 330,000,000 cu. ft. gas per day open flow, WP 2,150 psi.

SOUTHWEST TEXAS WILDCAT FAILURES

Guadalupe County: L. D. Cain 1 August Brody, in Jesus Cantu Sur. 15, 6 mi. SE

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Use the power of steam, air or water under pressure to lift liquids. Being simple jet pumps they have no moving parts and require no lubrication. A variety of models to meet different conditions. Also used as water heaters.

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THE POSITIVE LEAK PREVENTER

of Seguin, top Navarro 1,294 ft., top Chalk 1,610 ft., dry, TD 2,858 ft. in Edwards.

Kleberg County: Sun Oil Co. 5 E. G. Canales, A. Gonzales Sur. 340, 6½ mi SE of Premont, dry, TD 11,818 ft.

Starr County: A. & T. Drlg. Co. 1 Anna M. Kelsey, in Blk. 9, SK&K Sur. 71, 7 mi. NW of El Sauz, 8 mi. SW of Guerra field, dry, TD 1,778 ft.

Lockhart & Co. 1 fee-State, Sur. 923, 10 mi. NE of Rio Grande City and 1 mi. NW of Ross field, dry, TD 5,370 ft.

Willacy County: Magnolia Pet. Co. and J. S. Abercrombie Co. 2 Yturria Cattle Co., Lot 47, Reynolds Subd., Las Mestenas Grant, 7 mi. W NW of Raymondville, dry, TD 7,705 ft.

TEXAS GULF COAST

Deeper Pay Found In Hampton Field

HOUSTON.—A new deeper pay horizon has been opened by the second producer at the Hampton field in Hardin County. American Republics Corp. 3 Alexander Hampton, which was drilled to a total depth of 8,170 ft., was completed for an initial production of 97 bbl. of oil and 65 bbl. of salt water per day through a 5/32-in. choke with 500 psi. flowing pressure on the tubing. Gravity of oil is 43.5°, and gas ratio was 628. Production is through perforations at 7,312-15 ft. Hampton field was discovered in the early part of 1942 with the Hampton League fee, which gaged 517 bbl. of oil daily through a ¼-in. choke. This field is located approximately 4 miles southwest of Silsbee field and 2 miles southwest of West Silsbee production. The second test drilled was dry.

Houston Oil Co. confirmed production and opened a new producing level for its San Jacinto field discovery area several miles east of Humble dome in Harris County. The 1 A. J. Elkins et al, ¼ mile due east of the 1 Bender Estate discovery gasser, reported a potential flow of 53 bbl. of 64.5°-gravity condensate along with 1,933,000 cu. ft. daily through a 12/64-in. choke, and had an open flow calculation of 9,000,000 cu. ft. of gas daily. Tot· depth is 8,353 ft., with 5½-in. casing cemented in the hole to 8,352 ft. and perforated with 24 shots from 8,334-42 ft. for completion, more than 500 ft. below the producing level of the discovery which completed through perforations at 7,782-90 ft.

Henshaw Brothers and E. H. Smith 1 Walter Sipple, discovery well of the Sipple field, Live Oak County, on initial production gage flowed 259,300 cu. ft. of gas per day through ½-in. choke, with 730 psi. tubing pressure. Total depth is 2,808 ft., with perforations at 1,850-53 ft. This new gas field is located ½ mile southwest of Kittie field in Michael Caronican Survey 35. A new sand for this field has been opened by Henshaw Brothers and E. H. Smith 2 Walter Sipple, in Block 63, Kittie Subdivision, in Michael Caronican Survey 35, with top of new pay at 1,280 ft. Total depth is 1,620 ft., initial production was 775,000 cu. ft. af gas per day through a ¼-in. choke, producing through perforations at 1,281-86 ft.

A new sand for Bloomington field, Victoria County, was opened by Amerada Petroleum Co. 1 Stubblefield Unit. Drilled to a total depth of 6,911 ft., this well flowed a potential gage of 124 bbl. of oil through a 9/64-in. choke, gas-oil ratio 210, tubing pressure 540 psi., and gravity 22.7°.

TEXAS GULF COAST SUCCESSFUL

Hardin County: New oil sand Hampton pool—American Republics Corp. 3 Alexander Hampton, in A. Hampton League, TD 8,170 ft., top sand 7,312 ft., perf. 7,312-15 ft., IP: 97 bbl. oil per day and 65 bbl. salt water per day through a 5/32-in. choke, gas-oil ratio 628, TP 500 psi., gravity 43.5°.

Harris County: New gas-condensate pay San Jacinto pool—Houston Oil Co. of Texas 1 A. J. Elkins, in John Iiams Sur., 3½ mi. off E flank of Humble dome, TD 8,353 ft., top sand 8,534 ft., perf. 8,334-42 ft., IP: 53 bbl. condensate per day and 1,933,000 cu. ft. gas per day through a 12/64-in. choke, gas-condensate ratio 36,471, TP 2,405 psi., SIP 2,850 psi., gravity 64.5°, no water.

Live Oak County: Gas discovery Sipple pool—Henshaw Bros. & E. H. Smith 1 Walter Sipple, in Michael Caronican Sur. 35, ½ mi. SW of Kittie field, TD 2,808 ft., top pay 1,850 ft., perf. 1,850-53 ft., IP: 259,300 cu. ft. gas per day through a ½-in. choke, TP 730 psi.

New gas pay Sipple pool—Henshaw Bros. & E. H. Smith 2 Walter Sipple, Blk. 63, Kittie Subd., in Michael Caronican Sur. 35, TD 1,620 ft., perf. 1,281-86 ft., IP: 775,000 cu. ft. gas per day through ¼-in. choke, 510 psi. working pressure, no water.

Victoria County: New oil pay Bloomington pool—Amerada Petroleum Co. 1 Stubblefield Unit, Lot 6, Blk. 4, Crum Addn., Bloomington townsite, in Francisco Perez Grant, TD 6,911 ft., top pay 4,660 ft., perf. 4,660-70 ft., IP: 124 bbl. oil per day through a 9/64-in. choke, gas-oil ratio 210, TP 540 psi., gravity 22.7°, no water.

TEXAS GULF COAST WILDCAT FAILURES

Chambers County: Peeler Bros. and Lohman & Gardiner 1 B. D. Moore Estate, in B. L. Larson Sur., approx. ¾ mi.

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W of nearest production at Elm Bayou, dry, TD 8,507 ft.

Colorado County: Shell 1 John F. White, in M. Moore Sur., Sheridan area, dry, TD 10,500 ft.

DeWitt County: Lamar Hunt Trust Est. 1 Otto Rathcamp, K. W. Barton Sur., 8 mi. N of Cuero, dry, TD 8,014 ft.

Karnes County: George, Parker 1 R. M. Korth, in N. Whitehead Sur., 4 mi. SW of Gillette, dry, TD 6,106 ft.

Lavaca County: Providence Oil Co. 1 Carrie Smothers, in J. R. Foster Sur., 13 mi. SE of Hallettsville, dry, TD 9,000 ft

Live Oak County: Continental Oil Co. 1 Buck S. West, Tr. 1101, Blk. E, of Geo. West Ranch, 3½ mi. SW of George West and 5 mi. NE of Clay West field, dry, TD 10,114 ft.

Refugio County: C. G. Glasscock et al 1 Holmes-Heard, Lot 4, Blk. 8, Refugio townsite, 2 mi. N NW of Refugio, dry, TD 7,214 ft.

PERMIAN BASIN

Discovery Completes At High Potential

MIDLAND.—Cities Service Oil Co. 1-B J. W. Owens, west central Crockett County, Pennsylvanian discovery between the shallow Clara Couch and Olson fields, made completion potential of 597 bbl. of 37.5°-gravity oil in 24 hours, flowing through ½-in. choke. Gas-oil ratio was 1,970-1. Producing zone is the Crinoidal at 5,670-75 ft.

Completion of the well has been delayed by the high gas-oil ratio. Total depth of the well was 8,264 ft., in the Ellenburger, topped at 6,380 ft. and which developed sulfur water. Completion of the discovery at this high potential was a surprise to some operators, since the well had made several tests showing a high gas flow but only a good heavy spray of oil.

Meanwhile operators had three offsets under way. An east offset by Plymouth Oil Co., at its 1-O-A Owens, Section 6, Block GG, H&OB Survey, was drilling ahead below 5,690 ft. after a drill-stem test recovered only 180 ft. of drilling mud, with no shows, from 5,540-5,690 ft. The same operator's 2-O-A Owens, also in Section 6, and a north offset to the discovery, was drilling below 3,690 ft. Cities Service 1 W. L. Hobbs, Section 7, and a west offset, was drilling below 2,612 ft. in limestone.

In southwestern Ector County, Cities Service and Sinclair-Prairie Oil Co. 1 H. O. Wooten, Section 12, Block B-14, Public School Lands, had total depth at 8,335 ft. in the Mississippian limestone. With no shows in that zone, operators planned to plug back and try for completion in the Strawn, where, in drilling, it had yielded 2,040 ft. of oil and 240 ft. of oil-cut mud on a drill-stem test at 8,065-8,100 ft. Plugged back depth was 8,110 ft.

In southern Ector County, Gulf Refining Co. 1-A-E University-Kewanee, ¾ mile southeast offset to the Jordan Ellenburger discovery, reported a sharp structional dip. Top of the Silurian was logged at 7,97[illegible] which, on an elevation of 2,823 ft., places it some 551 ft. lower structurally than the discovery. Operators continued drilling below 8,103 ft.

Hopes for a second pay in the Ellenburger at the Jameson field of Coke County were fading when Sun Oil Co. 2 Allen Jameson, north offset to the Crinoidal discovery, continued to swab sulfur water. Top of the Ellenburger was 7,085 ft., drilled out to 7,110 ft., where swabbing recovered 350 ft. of black, salty sulfur water having only a trace of oil and gas. The 2 Jameson missed the regular Strawn pay section, running low on that formation. However, it was 22 ft. high on the Ellenburger at the 1 Jameson, south offset to the discovery, which also had water in the Ellenburger. Operator plugged back on the Jameson for completion attempts in the Crinoidal.

WEST TEXAS SUCCESSFUL WILDCAT

Gaines County: Cities Service Oil Co. 1 T. S. Riley, Sec. 361, Blk. G, CCSD&RGNG Sur., 9½ mi. SW Seminole, Clear Fork 5,950 ft., top pay 7,039 ft., pumped 42 bbl. 31.4°-gravity oil and 8½ bbl. water a day, TD 7,251 ft., elevation 3,409 ft.

WEST TEXAS WILDCAT FAILURES

Andrews County: Amerada Petroleum Corp. 1 University-Andrews, Sec. 41, Blk. 7, University Lands, dry, TD 4,918 ft., anhydrite 2,110 ft., Yates 3,160 ft., Greyburg 4,760 ft., San Andres 4,914 ft., elevation 2,960 ft.

Crockett County: Rhodes Drilling Co. 1 Caly C. Montgomery Estate, Sec. 11, Blk. 4, TCRR Sur., 18 mi. SW Ozona, dry, TD 2,501 ft. in limestone.

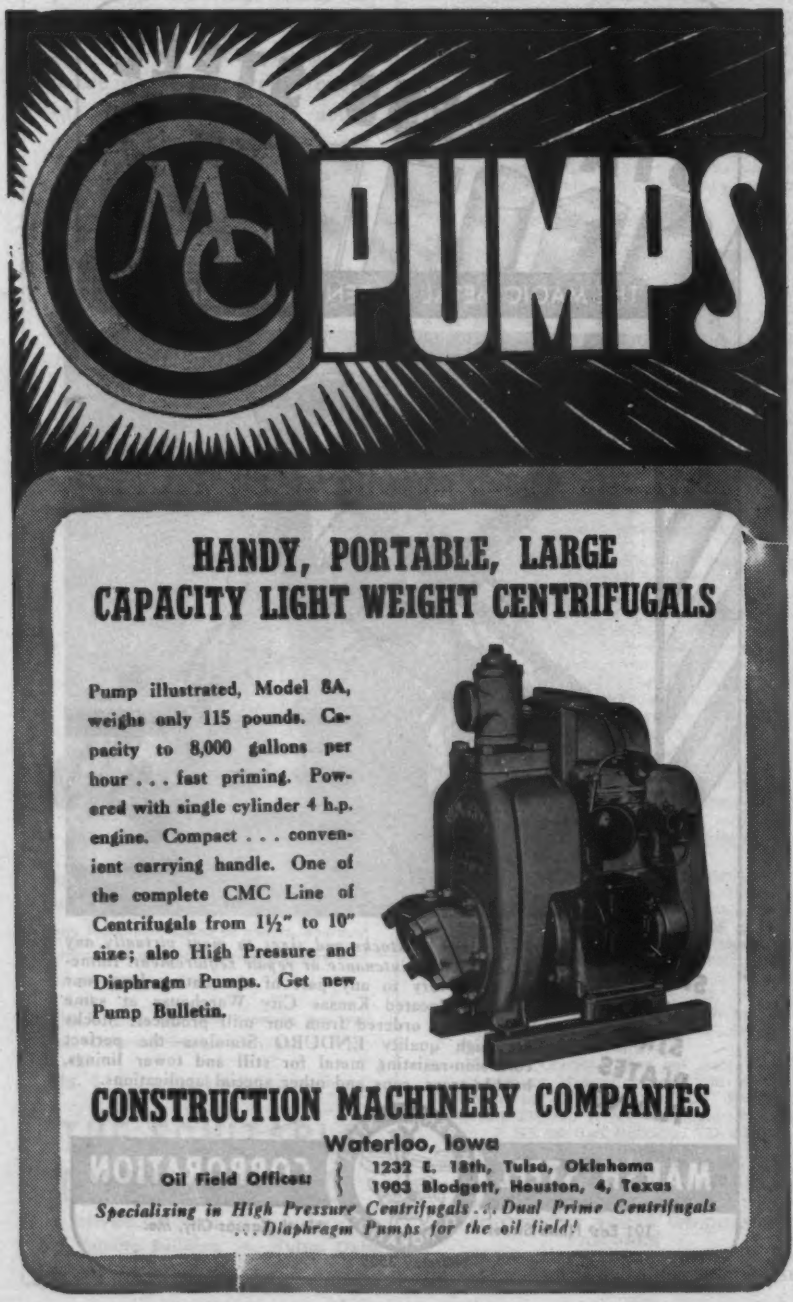
Crosby County: Humble Oil & Refining Co. 1 Thomas Montgomery, Sec. 21, Blk. 2, B&B Sur., 12 mi. NE Ralls, dry, TD 9,707 ft., Wolfcamp 5,240 ft., Mississippian 9,110 ft., granite was 9,640 ft., pre-Cambrian 9,704 ft., elevation 3,108 ft.

Midland County: Humble Oil & Refining Co. 1 L. B. Floyd, Sec. 15, Blk. 37, T&P Sur., 14 mi. SE Midland, dry, TD 5,285 ft., sulfur water 4,745, 5,053 and 5,285 ft.

Humble Oil & Refining Co. 1 M. M. Floyd, Sec. 16, Blk. 37, T&P Sur., 15 mi. SE Midland, dry, TD 11,322 ft., PB 9,590 ft., Strawn 10,198 ft., Devonian 11,185 ft., DST 11,196-301 ft. recovered gas-cut mud, then headed gas and mud, estimated 90,000 cu. ft. first 39 hours, then averaged 6 to 8 bbl. oil a day, 46.7° gravity, with some increase in gas, no water, elevation 2,612 ft.

SOUTHEASTERN NEW MEXICO

HOBBS.—Mid-Continent Petroleum Corp. 1 Marshall, east Lea County wildcat in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SW SE SE 11-21s-36e, was drilling ahead below 6,990 ft. in the lower Permian limestone. A drill-stem test, open 45 minutes, at 6,878-6,990 ft. recovered 360 ft. of drilling mud and 1,350 ft. of salt water, with no shows of oil or gas. This well, located 3½ miles northwest of production at Drinkard, had previously reported commercial production from the lower Permian.

Barnsdall Oil Co. 1 Edna Elliott-Federal, 20-21s-37e, 1-mile north extension to Drinkard production, swabbed and flowed 110 bbl. of oil and 32 bbl. of water, and was shut in to install pump and complete. Total depth was 6,709 ft., plugged back to 6,697 ft. Barnsdall had location staked for a diagonal east offset to the 1 Edna Eliott-Federal.

SOUTHEASTERN NEW MEXICO WILDCAT FAILURES

Eddy County: Culbertson-Irwin, Inc. 1-L State, SW NW SW 2-20s-31e, dry, TD 2,490 ft., anhydrite 785 ft., salt 1,068 ft., Yates 2,223 ft., elevation 2,481 ft.

Lea County: H. T. Page & Harvey Yates 1 Stroup, SE SE 10-18s-32e, dry, TD 4,951 ft., salt 1,410 ft., Queens 3,875 ft., show dead oil 4,880 ft.

SOUTH LOUISIANA

Offshore Test Reports Oil Shows

NEW ORLEANS. — Magnolia Petroleum Co. 1 State Lease 684, Block 94, wildcat test 25 miles off the Louisiana Coast, and about 23 miles south-southwest of gas production at Rabbit Island, St. Mary Parish, reports some oil shows from a drill-stem test. Total depth is 2,613 ft., with 7-in. pipe cemented at 2,562 ft., and an initial test through 16 perforations shot at 2,572-74 ft. recovered 240 ft. of mud with the bottom 10 ft. cut with oil on a drill-stem recovery. Additional holes were being made for a new test from 2,572-75 ft.

Humble Oil & Refining Co. 2 Humble-John M. Caffery fee, wildcat in the Cote Blanche Bay area, St. Mary Parish, continues to drill with the bit at 14,857 ft. in hard shale and lime streaks. This well is projected to 15,000-ft. level.

Sun Oil Co. is moving rig back in to rework its new oil discovery in the Moss Lake area of Calcasieu Parish. The well, 1 Louisiana Farm & Livestock, 7-11s-9w, 2 miles west of East Moss Lake gas production, had been shut in for some time awaiting tank construction, and when opened for a gage, it flowed 11 bbl. per hour through a ⅛-in. choke with 1,350 psi. tubing and casing pressure. Pressure then dropped to 950 psi. and started making some fresh water. The well gradually went to dry gas and was shut in with 3,300 psi. tubing pressure and 3,500 psi. casing pressure. Total depth is 16,152 ft., with 7-in. pipe cemented at 9,196 ft. and is perforated for completion with 32 shots from 8,970-78 ft.

In the East Mud Lake area of Cameron Parish, Magnolia 1 Vincent Estate, wildcat confirmation test 3,400 ft. northeast of the 1-C Lutcher gas discovery, is drilling ahead below 10,428 ft. The 7-in. protection casing was cemented at 10,387 ft. and the hole is credited with gas and condensate shows from 9,937-10,085 ft.

SOUTH LOUISIANA WILDCAT FAILURE

Jefferson Davis Parish: Humble 1 Thos. E. Waggaman et al, West Tepetate area, 38-8s-3w, 1 mi. S and ¼ mi. W of nearest production, dry, TD 10,140 ft.

CANADIAN FIELDS

Area South of Leduc Has Promising Shows

CHATHAM.—First showings at depth in the Wetaskiwin area, 50 miles southeast of Edmonton and south and east of the Leduc field, were struck in McColl-Frontenac Wetaskiwin-East 3-22, LSD 22-46-23w4, which got good showings of gas and oil with some water in drill-stem tests, and is deepening below 4,448 ft. The showings were above the Devonian limestone, the producing horizon of the related Leduc field. McColl-Frontenac Bigstone Creek 1-20, LSD 1, 20-46-26w4, several miles to the west, is below 4,275 ft.

Leduc.—In the Leduc field, Imperial-Leduc 5, LSD 8, 21-50-26w4, is below 4,660 ft. and coring in the Devonian, with main producing horizon expected around 5,100 ft. Imperial-Leduc 6, LSD 1, 22-50-26w4, and Imperial-Leduc 7, LSD 4, 15-20-6w4, are drilling ahead; Imperial-Leduc 8, LSD 7, 26-50-26w4, is rigging up. McColl-Frontenac 14-14 Wizard Lake, LSD 14, 14-48-27w4, is below 4,886 ft. and nearing the producing horizon.

Jumping Pound.—Shell Exploration 5-7-1, LSD 5, 7-25-4w5, encountered a low porous horizon in the Madison limestone at 10,893 ft. with a little gas and some water. It is deepening to test the Devonian.

Turner Valley.—In the Turner Valley North Extension, Home 26, LSD 15, 18-21-3w5, will probably make a producer, having finished with Madison limestone at 8,541-8,970 ft. and two porous zones at 8,653-8,760 ft. and 8,905-55 ft.

Lloydminster.—In the Lloydminster field, Dalo 2, LSD 9, 15-50-2w4, finished at 1,989 ft. with initial production of 50 bbl. from oil sand at 1,983 ft. Wells testing in the northwest extension are L.L.O. 1, SE 8, 15-50-2w4, finished at 1,995 ft. with sand at 1,989 ft., and Superior 8, NE 6, 14-50-2w4, finished at 1,986 ft. with sand at 1,978

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ft. In the Lloydsask area, Groat Furness 26, NE 9, 12-48-28w3, finished at 1,943 ft. with sand uncommercial at 1,828 ft. and has been abandoned. Stalwart 1, NE 12, 29-48-28w3, finished at 1,919 ft. with sand at 1,912 ft., is testing.

Husky Refinery, with plant at Lloydminster, is starting a program of 10 wells either alone or in conjunction with other operators; the first of these, Husky-McLaughlin 16-34, LSD 16, 34-47-2w4, has spudded. Location is to the west of the early Alberta production.

N. CENTRAL TEXAS

Montague Wildcat Opens New Shallow Area

WICHITA FALLS.—Completion of a 28-bbl. pumper in northwest Montague County, opening a new shallow producing area, was reported last week. Located 10 miles north of St. Jo, Garrett, Grant & Pace 1 Pittman set casing at 1,981 ft. and completed through open hole to 2,008 ft., total depth. Oil showings in sands were found at 1,482-90, 1,640-55, 1,923-27, 1,986-91, and 2,003-08 ft.

Elsewhere in North Central Texas, drilling and exploratory tests have shown a steady gain over the past several months. A new 5,000-ft. rotary test for Jack County was reported at Charles Grace Drilling Co. 1 Koenninger, 1½ miles southeast of the Risch field. A second test for the new Ellenburger area, 9 miles south of Muenster, Cooke County, was planned by J. D. Lewis at his R. W. True. Location is in the J. Davis Survey, and 3,300 ft. northwest of Phillips Petroleum Co. 1 Atcheson, discovery well. In Archer County, 2 miles northwest of Holliday, and a 1-mile outpost to present production, Alexander Goldsmith 1 R. Lee Kemper will test all zones to 5,200 ft.

Two Ellenburger tests were reported for West Central Texas. In Hamilton County, W. J. Gourley has work under way at his 1 T. W. Winters. It is expected to drill to around 3,500 ft. Location is 1 mile north of the town of Evant. The other operation, said to be pending, is by Cal Texas Oil Co., on an undisclosed block near Joshua in Johnson County. Exact location was not announced but it was said to be based on geological information. First objective would be the Strawn, expected around 2,300 ft., with the Ellenburger as a secondary goal. In Throckmorton County, a shallow wildcat was announced at J. D. Arthur and C. A. Grissom 2 D. W. Key, Block 1,194, TE&L Survey. It will be drilled to 800 ft.

In the southeast corner of Childress County, Amerada Petroleum Corp. 1 Middleton topped the Wichita Albany at 1,920 ft., the Pennsylvanian at 3,200 ft., and was drilling ahead below 3,985 ft. in shale. Northeast Cooke County, Denver Producing & Refining Co. 1 Luse, in the A. Burns Survey, was drilling below 4,410 ft. It is projected to 10,000 ft. Nine miles northeast of Foard City, Foard County, Magnolia Petroleum Co. 1 Bell, reported limestone at 4,829-4,945 ft., and porous limestone with oil shows from 4,845-61 ft. However, a drill-stem test recovered salt water and drilling mud, and operators drilled ahead.

NORTH CENTRAL TEXAS SUCCESSFUL WILDCAT

Montague County: J. M. Garrett 1 Varner Pitman, James Ferguson Sur. A-261, 10 mi. N St. Jo, pumped 40 bbl. 41.9°-gravity oil a day, sand 1,984-90 ft., TD 1,996 ft.

NORTH CENTRAL TEXAS WILDCAT FAILURES

Archer County: C. G. Butts et al 1 Olin Calvin, W. K. Keen Sur. A-823, 8 mi. NE Olney, dry, TD 1,203 ft. in sandy shale.

C. G. Butts et al 1 J. M. Graham, E. M. Hardin Sur. A-774, 7½ mi. NE Olney, dry, TD 1,200 ft. in shale.

Cooke County: G. E. Brimmer 1 W. W. Otto, J. Lewis Sur. A-567, 3½ mi. SW Myra, dry, TD 1,708 ft., sand and oil shows 1,608-25, 1,662-82 and 1,696 ft.

Wichita County: J. G. Fowler 1 A. Kasper, Sec. 827, TE&L Sur., 4 mi. NW Clara, dry, TD 2,101 ft. in shale.

Young County: Fain & McGaha 1 J. W. Jack, Blk. 23, Young Co. School Land, 1 mi. N Markley, dry, TD 4,210 ft. in shale with sand streaks.

Warren Oil Corp. 1 S. W. Haggard, Sec. 744, TE&L Sur. A-749, 2½ mi. SW Proffitt, dry, TD 3,855 ft., Caddo 3,842 ft., acidized and recovered 6 bbl. oil and 16 bbl. water.

T. A. Wright 1 M. E. Davis, Sec. 1, SPRR Sur. A-267, 3 mi. NW Eliasville, dry, TD 2,400 ft.

WEST CENTRAL TEXAS SUCCESSFUL WILDCAT

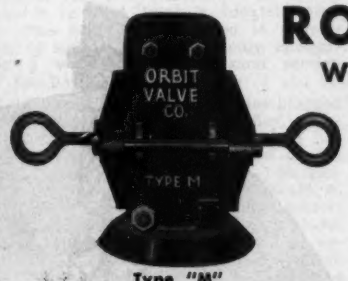
Throckmorton County: J. H. Snowden 1 Bailes-Parmeter-Jones, Sec. 296, BBB&CRR Sur., 5 mi. S Throckmorton, flowed 233.7 bbl. 41°-gravity oil in 6 hr. through ½-in. choke, potential 934 bbl. a day, GOR 628:1, Caddo 4,234-45 ft., TD.

WEST CENTRAL TEXAS WILDCAT FAILURES

Callahan County: Rathke Oil Co. 1 H. M. Kennard, Sec. 26, ETRR Sur., 7 mo. NW Baird, dry, TD 2,939 ft., sand with oil show 1,550-70 ft.

Eastland County: J. D. Barefield 1 C. B. Bryant, Sec. 20, Blk. 1, H&TC Sur., 5 mi. NW Gorman, dry, TD 1,001 ft. in sandy shale, show dead oil 906-08 ft.

Jones County: Ben Banner 1 Nettie Rut-



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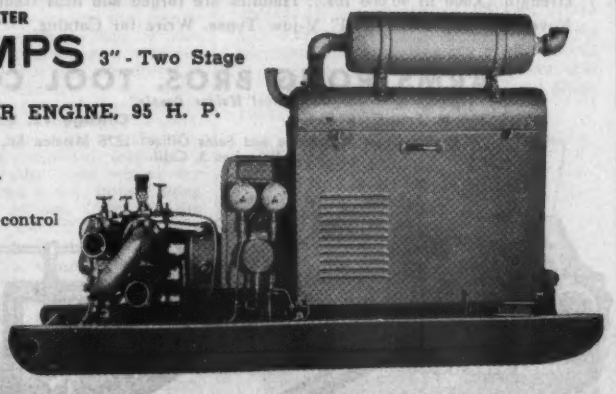

ledge, Sec. 41, Blk. 16, T&P Sur., 5½ mi. SE Hawley, dry, TD 2,289 ft., coal 1,760-63 ft., dry limestone 1,781 ft., water 2,278 ft.

LA.-ARK.

Arkansas Completions Show Continued Decline

EL DORADO.—While permits for new wells are holding up, Arkansas completions have fallen off and exploratory operations have shown a decline for the past several months. Nine new permits were announced last week by the Oil and Gas Commission, including McAlester Fuel Oil Co.'s wildcat in 7-16s-6w, Ashley County. Ouachita, Columbia, and Franklin received new operations, with the balance of activity being in the Wesson field of Ouachita County.

In Lafayette County, 2 miles northwest of the McKamie field, McAlester Fuel Co. 1-A J. W. McDonald, 23-17s-24w, was drilling below 5,970 ft., with the Smackover limestone its objective. Tops logged included the first Blossom sand at 2,600 ft., Tokio 3,488 ft., anhydrite stringer 4,290-98 ft., Massive anhydrite 4,424-4,600 ft., and the Kilpatrick at 4,600-20 ft. Six miles northeast of the Midway field, Nevada County, Hunt Oil Co. 1 Bodcaw Oil Co. "Fee," in 36-14s-23w, was drilling below 3,360 ft. in the lower Glen Rose.

Louisiana activity continues brisk, with a number of wildcats reporting. In Union Parish, 1 mile south of the Ora field, F. B. King et al 1 N. W. Norris perforated at 2,168-74 ft., and on 10/64-in. choke flowed an estimated 5 bbl. of fluid an hour, running 85 per cent oil. Tubing pressure was 110 lb. Total depth is 2,176 ft. in the Nacatoch. Other Union County tests included Feazel, Neely & Roberts 1 Dykes, 7½ miles south of the old Oakland field, which recovered 5 ft. of oil sand in the Nacatoch between 3,138-48 ft. Operators ran electric log, perforated at 2,135-39 ft., but swabbed oil and wash water, then squeezed perforations and were waiting on cement. In 36-23n-2w, 4 miles east of Spearsville, T. L. James & Co., Inc. 1 G. H. Miller perforated at 6,413-30 ft. The well was washed but would not flow; then was swabbed to 2,000 ft., recovering salt water with a slight show of gas. Perforations were squeezed and new holes made at 6,414-18 ft. A drill-stem test at that depth, open 4 hours, recovered 240 ft. of mud cut with salt water and a trace of oil.

In Bossier Parish, 2½ miles northeast of Elm Grove field, M. A. Halsey 1 Skidmore was drilling below 3,921 ft. after a drill-stem test at 2,586-2,604 ft. recovered 18 stands of salt water, with no shows. Sample top on the Eagleford was 2,550 ft., with salt water believed to be coming in at 2,602 ft. On the east edge of the Bethany gas field, Caddo Parish, C. H. Murphy, Jr. 1 W. C. Agurs, 7-16n-16w, was drilling below 5,250 ft in the Rodessa zone, which showed odor and stains in cores from 4,930-5,011 ft. A test at 4,987-5,029 ft., open 14 minutes, recovered 60 ft. of gas-cut mud, with a bottom-hole flowing pressure of 50 lb. One mile southwest of the Holly field, Guy Mabee Drilling Co. 1 H. B. Sample, 7-13n-13w, had total depth at 2,899 ft. in the Paluxy. This 3,000-ft. Eagleford test had logged broken oil sand at 2,823-45 ft.

NORTH LOUISIANA WILDCAT FAILURES

Madison Parish: Stanolind Oil & Gas Co. 1 E. Sondheimer, 19-18n-12e, dry, TD 4,069 ft., no tops reported.

Richland Parish: P. E. Parsons et al 1 Brooks-McKibben, SE NE SE 8-17n-9e, dry, TD 3,500 ft., upper Glen Rose sand 3,138-94 ft., limestone and shale 3,194-3,265 ft., elevation 97 ft.

ARKANSAS WILDCAT FAILURE

Ashley County: McAlester Fuel Co. 1-C Crossett Lumber Co., NW NW 27-16s-7w, dry, TD 3,809 ft., no tops reported.

EASTERN TEXAS

San Augustine Wildcat Doubles Its Production

DALLAS.—Production at Hiawatha Oil & Gas Co. and Bentex Oil Corp. 1 Johnson, San Augustine County discovery, has nearly doubled since early reports indicated a daily potential of approximately 100 bbl. of oil a day. A 3,000-gal. acid treatment, followed by 6,000 gal., produced a flow of 165 bbl. of oil a day. Railroad Commission allowable on the well is 92 bbl. daily. Official formation tops on the discovery are: Saratoga 3,190 ft., base of the Austin chalk 4,572 ft., Goodland limestone 4,612 ft., Paluxy shale 5,011 ft., upper Glen Rose 5,118 ft., Pettit 7,772 ft., and the Travis Peak at 8,708 ft.

Continental Oil Co. 1-C Louis Werner, Travis Peak test 3 miles east of Deadwood, Panola County, was coring below 2,670 ft. in limestone. A drill-stem test, thought to be in the Paluxy, with packer at 2,625 ft., and open 92 minutes, brought gas to the surface in 47 minutes, but with slight surface pressure. Recovery was 40 ft. of slightly gas-cut mud, having rainbow show of oil; 90 ft. of mud cut with salt water, and 90 ft. of salt water having an oily foam on top.

In Smith County, 5 miles northeast of Starrville, Bobby Manziel 1 J. L. Morrison was said to be showing prospects of making a small producer. Originally plugged as dry over a year ago, operators have new total depth at 8,076 ft. Reperforation in the Pettit around 8,020-61 ft. resulted in swabbing some 6,000 ft. of fluid, mostly oil, with a good show of gas. No volume on the gas was disclosed. This test was dry in the Paluxy and Rodessa zones.

A Travis Peak exploration in Navarro County, 2 miles southwest of Bazette, J.. L.

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Collins et al 1 Mrs. Lilly Barnett made a 1-hour test at 6,152-6,238 ft., using 1,000 ft. of water cushion, producing a slight blow at the surface and recovered 200 ft. or drilling mud slightly cut with gas. A total depth of 6,504 ft., in sand and shale operators ran electric survey, then plugged back to 5,710 ft., but later found the plug at 5,850 ft. On last report operators we dumping in more cement before making a test of the Bacon limestone at 5,680-5,710 ft

EAST TEXAS SUCCESSFUL WILDCAT

San Augustine County: M. E. Davis 1 W. A. Johnson, Edmund Quirk Sur., 6 mi. N San Augustine, 1 mi. W Bland Lake, flowed 92 bbl. 42.3°-gravity oil in 24 hours through 9/64-in. choke, tubing pressure 1,550 lb., casing pressure 2,200 lb., GOR 2,000:1, pay 8,130-60 ft. in Pettit, TD 8,978 ft.

EAST TEXAS WILDCAT FAILURES

Fannin County: McCurdy Bros. 1 B. D. Bible, Joseph Jeffries Sur., 3½ mi. NW Ravenna, along Red River, dry, TD 2,200 ft., sample tops: Woodbine 912-1,138 ft., Paleozoics 2,104 ft.

Walker County: H. C. Bishop 1 G. W. Beardsley Estate, L. M. Collard Sur., N New Waverly townsite, dry, TD 5,003 ft., no tops reported.

CALIFORNIA

Two Shell Tests Look Promising

LOS ANGELES.—Prospects for success at two Shell Oil Co. wildcats in the Los Angeles Basin appeared bright at the close of the week. In the Athens Heights area, Shell has run and cemented 7-in. casing at 8,882 ft. in the 1 Union-Poindexter, 12-3s-14w. This wildcat was drilled to a total depth of 9,272 ft., and reportedly encountered a well-saturated oil sand section near the bottom.

In the Signal Hill field, Shell has plugged back its deep wildcat, the 2 Dolley, 29-4s-12w, from 10,544 ft. to 10,410 ft., and has been making barefoot blow tests of the interval from the bottom of the 7-in. casing at 10,030 ft. to the plug at 10,410 ft. During the tests the well made considerable oil and water with strong gas blows. It was reported that the flow was approximately 1,200 bbl. per day through 16/64-in. choke with the crude showing a 60 per cent water cut. Shell has not released any actual production figures, but admits that the well appears capable of very substantial production. Present plans call for cleaning out the present plug and re-plugging the bottom in an effort to exclude the water.

Standard Oil Co. of California has reached a depth of 8,794 ft. in the 65-3 McGrath, 30-2n-22w, and is preparing to run a formation test. This well is a confirmation test of the recent discovery made by Standard in the Oxnard Plain in the Montalvo Area of Ventura County at the 2 McGrath. It is located across the Santa Clara River approximately ½ mile from the discovery well and at present depth is about 50 ft. deeper than the discovery. Three and one-half miles northeast of the 65-3 McGrath, Standard is continuing drilling and coring at an outpost test, the 1 Maxwell, 23-2n-23w. Present depth is 5,579 ft.

Calumet Gold Mines is ready to start its 1 Calumet-Galoil, 30-29s-21e, on a 240-acre Follansbee-Norton lease in the Salt Creek area. Subsurface dips indicate the venture to be located structurally high, and operators plan to drill to a depth of approximately 1,800 ft. to explore the Phacoides formation. This venture is being undertaken on the basis of reports that oil was found seeping near the bottom of an earlier test well, the 1 FOB, which was abandoned at a depth of 2,400 ft. The 1 FOB is only a short distance from the current undertaking.

Seaboard-Bandini's second well in the Bacon Hills Area of Kern County, the 24-21 Seaboard-Bandini, 21-28s-20e, continue to drill ahead in brown shale at a depth of 6,101 ft. The discovery well, 3-21 Seaboard-Bandini, currently is pumping 47 bbl. every 8 hours. Gravity of the oil is 39.6° and water cut is approximately 0.1 per cent.

CALIFORNIA SUCCESSFUL WILDCAT

Orange County, West Newport Area: Amerada Petroleum Corp. 36-7 Farnsworth, 7-6s-10w, pumped 418 bbl. per day, 17.0°-gravity, 1.8 per cent cut, TD 5,555 ft.

CALIFORNIA WILDCAT FAILURES

Kern County, Bena Area: Gene Reid Exploration Co. 3 Tejon, 23-30s-30e, dry, now shows, TD 1,031 ft.

Pond Area: Western Gulf Oil Co. 1 Crown Zellerbach, 27-25s-24e, dry, elev. 255 ft., first Mya 2,644 ft., second Mya 3,335 ft., third Mya 3,770 ft., fourth Mya 3,970 ft., fifth Mya 4,030 ft., Mulina 4,050 ft., TD 4,130 ft.

Orange County, Santa Ana Canyon Area: Rubicon Oil Co. 1 Wilcox, 6-4s-8w, dry, TD 6,325 ft.

Santa Barbara County, Cat Canyon Area: General Petroleum Corp. 41-14 Dominion, 14-9n-33w, dry, TD 5,071 ft.

Ventura County, Piru Creek Area: Bolsa Chica Oil Corp. 76-32 Bolsa Chica, 32-5n-18w, dry in gray sand, elev. 1,850 ft., TD 4,652 ft.

APPALACHIAN FIELD

New West Virginia Field Gets Second Good Gasser

PITTSBURGH.—A new gas field is confirmed with a second good gas well on Briery anticline in Portland district Preston County, West Virginia, where William E. Snee, Orville Eberly et al completed No. 1 Cora E. Lewis in the Onondaga chert with a final open flow of 3,055,000 cu. ft. which rocked up to 2,320 psi. in 5 hours. From a surface elevation of 1,995 ft., the Onondaga lime was topped at 5,327 ft. corrected measurement, chert 5,385 ft., casing was set at 5,358 ft., first gas 5,413 ft. which gradually increased to 5,426 ft. where drilling was halted for shut-in test. The gas from No. 3 Sisler, the other Onondaga chert well, was shut in for test, and the new well turned in the line and began feeding at 2,900,000 cu. ft. holding a back pressure on the well. Geographically, the new pool is well situated being east of the older gas fields and near a major gas system into which the gas is being delivered. No estimate has, or can be made yet, of the possibly new reserves added by this pool but the structure is large and it adds incentive to the wildcatting on the more eastern structures in this state, western Maryland and Virginia.

In Poco district, Kanawha County, Columbian Carbon Co. completed another oil well on H. H. Parsons lease where the No. 4B is rated 100 bbl. a day, initial, along with 100,000 cu. ft. of gas, from the Big lime. Total depth is 1,877 ft.

In Clear Fork district, Raleigh County, Hope Natural Gas Co. completed 9,115 Joseph Chambers with a gage of 852,000 cu. ft. of gas from the Ravencliff sand at 1,835-62 ft.; rock pressure was 400 psi. in 24 hours; total depth is 1,892 ft.

In Baileysville district, Wyoming County, Hope Natural Gas Co. completed Nos. 9,003 and 9,017 New River and Pocahontas Consolidated Coal Co. in the Berea which gaged

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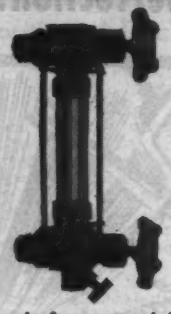

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natural 2,281,000 cu. ft. and 2,476,000 cu. ft. of gas, respectively. In Oceana district, this company completed Nos. 9,058 and 9,090 Loup Creek Colliery Co. good for 67,000 cu. ft. and 881,000 cu. ft. of gas from the Big lime and Ravencliff, respectively.

New locations totaled 21 and were in Birch and Otter districts of Braxton County; Southwest district, Doddridge County; Glenville district, Gilmer County; Laurel Hill and Sheridan districts, Lincoln County; Chapmansville district, Logan County; Mannington and Union districts, Marion County; Union district, Putnam County; Banks, Meade and Union districts, Upshur County; Union district, Wayne County; Oceana district, Wyoming County.

On Chestnut Ridge in Springhill Township, Fayette County, New Penn. Corp. et al have made locations, both wildcats, for tests on the Paul E. Dunham and on the J. R. Smiley tracts south of the present gas field. Offsetting the Oriskany gas well, or the south offset No. 1 Hartman to the large chert gas well on the Smith farm, Orville Eberly et al has made a location for a test on the Albert Opperman tract, Georges Township.

Also in Georges Township, Manufacturers Light & Heat Co. bottomed No. 1 Jesse S. Tutsey at 7,199 ft. with a final gage of 3,000,000 cu. ft. of gas with a rock pressure of 1,775 psi. in 72 hours. The Onondaga chert was topped at 6,872 ft. with gas pays throughout it to the Oriskany topped at 7,036 ft.

In Plum Creek Township, Armstrong County, Peoples Natural Gas Co. completed No. 1 M. C. Sutter good for 696,000 cu. ft. of gas with the Thirty Foot sand 1,627-54 ft., gas 1,639-45 ft., total depth 1,688 ft.

New work consisted of 11 locations in Boggs, Kiskiminitas and Kittanning townships, Armstrong County; Porter Township, Clarion County; Cumberland and Greene townships, Green County; Washington Township, Indiana County; Clover Township, Jefferson County; Fallowfield, West Bethlehem and West Pike Run townships, Washington County; Washington Township, Westmoreland County.

MISSISSIPPI

Wildcats Over State Report No Shows

JACKSON.—Wildcat operations attracting interest in Rankin and Yazoo counties reported no shows the past week but, from drillers' information, were checking high on other tests in the areas. R. B. Lack and W. G. Nelson Exploration Co. 1 L. E. Ridgeway, in 35-3n-2e, Rankin County, 3 miles south of Star, was preparing to core below 7,439 ft. Operators reported a drilling break at 7,434 ft., and it was out of the Eutaw sand at 7,390 ft. If sample information is correct, it is running high on the Eutaw. Carter Oil Co. 1 Medie Morgan, 7,000-ft. test in 9-12n-3w, 5½ miles northwest of Yazoo City, placed the chalk at 4,800 ft., and Wodward sand at 4,900 ft., by samples. Total depth is 5,100 ft. Operations were delayed by stuck drill pipe at 3,500 ft. while coming out of the hole.

Other exploratory tests included Stanolind Oil & Gas Co. 1 C. E. Steen, in 4-13n-6e, Attala County, which was drilling below 4,649 ft. Cores at 4,406-84 ft. recovered sandy shale, with no shows, in the lower Cretaceous. In Chickasaw County, Davidor & Davidor 1 Carter, 24-12s-4e, topped the Tuscumbia limestone at 2,654 ft., and was below 2,747 ft. in hard limestone, on last report. Atlantic Refining Co. 1 R. G. Dunning, 2¼ miles east of Tibber, Clay County, had stopped at 8,736 ft. to run electric log. In Rankin County, 7-5n-5e, Lion Oil Refining Co. 1 W. G. Sowell was drilling hard sand below 6,710 ft.

ROCKY MOUNTAIN

Important Test Planned In NW New Mexico

DENVER.—The San Juan Basin in northwestern New Mexico, where a lease play has been under way for several years, and extensive geological work has been done by major companies, is scheduled for an important test in British-American Oil Producing Co. 1 Cronican-Federal, NE NE SW 23-30n-16w. The location is 7 miles northeast of the Hogback field, which produces high-gravity crude from the Dakota at around 800 ft., and 15 miles southwest of the Southern Ute dome, which has 3 gas wells in the Dakota at around 2,500 ft., the largest having an initial production of 70,000,000 cu. ft. per day. The Dakota is expected at around 5,700 ft. in the new test. The interesting feature of the British-American wildcat is its strategic location in reference to past development in the basin. Trending irregularly from the southwest to the northeast is a ridge known as "the hogback," on which the Mesa Verde formation, consisting of sandstones, shale and coal, is exposed. The oil and gas fields, including Hogback, Southern Ute, Barker Creek, Rattlesnake, Hospah and Table Mesa, lie to the west of the hogback. To the east are the Aztec and Bloomfield areas in which high-gravity oil has been found in small quantities in formations younger than the Dakota, and gas in Fulcher Basin and Kutz Canon in the Picture Cliff formation of Cretaceous age. The English-Byrd-Frost Dakota test in Kutz

LEGAL

U.S. DEPARTMENT OF THE INTERIOR, Bureau of Land Management, Washington 25, D.C. Notice is hereby given that sealed bids will be received until 1 p.m., Eastern Daylight Saving Time, Wednesday, July 23, 1947, for land described herein situated within the known geologic structure of the Grass Creek field, 6th P.M., Wyoming. This land is offered to qualified bidders of the highest cash amounts per acre as a bonus for the privilege of leasing the land under section 17 of the leasing act of February 25, 1920 (41 Stat. 437, 30 U.S.C. sec. 181), as amended, in the following parcels: T. 46 N., R. 96 W., Parcel No. 1, sec. 7, lot 2, 38.74 acres. Parcel No. 2, sec. 7, SW¼SE¼, 40 acres. Parcel No. 3, sec. 27, S½S½, 160 acres. T. 46 N., R. 99 W., Parcel No. 4, sec. 12, SE¼NE¼, E½SE¼, 120 acres. Total, 358.74 acres. Bids must be submitted on each parcel separately but if two or more parcels are awarded to the same bidder they may be included in a single lease. Royalties payable to the United States will be at the rate of 12½ per cent to 25 per cent for oil and 12½ per cent to 16 2/3 per cent for gas in accordance with Schedule B in the lease form. All bids must be submitted to the Director, Bureau of Land Management, Washington 25, D. C., and each bidder must submit with the bid one-fifth of the amount bid in cash or by certified check on a solvent bank, or by money order, made payable to the order of the Treasurer of the United States, and file the showing of qualifications to receive a lease, required under 43 CFR 192.42(b) and (c). The envelopes should be plainly marked, "Bid for Parcel No. , Grass Creek field, Wyoming. Not to be opened before 1 p.m., Eastern Daylight Saving Time, July 23, 1947." No bids received after the hour fixed herein for receiving bids will be considered. The remainder of the bonus and the annual rental at the rate of $1 per acre must be paid and a corporate surety bond in the sum of $1,000 must be furnished by a successful bidder prior to the issuance of a lease. A $5,000 corporate surety bond will be required prior to commencing drilling operations on the land. The deposits of the other bidders will be returned upon acceptance of the successful bids. Bidders are warned against violation of section 59, U.S. Criminal Code, approved March 4, 1909, prohibiting unlawful combination or intimidation of bidders. The right is reserved to reject any and all bids. Fred W. Johnson, Director.

Canon, 35 miles southeast of the British-American location, is still uncompleted in the Dakota at 6,725 ft., plugged back depth, although it had good shows of oil and gas.

Seven Mile discovery.—California Co.-Phillips Petroleum Co. 1 Christiana, NE NE SE 8-17n-77w, Seven Mile Dome, Albany County, Wyoming, reported a potential discovery in the Muddy last week, which showed 940 ft. of oil and 50 ft. of mud in 30 minutes on a drill-stem test through a ¼-in. choke, with no water, is drilling ahead. Top of the Muddy was at 5,816 ft. The Dakota, top at 5,915 ft., showed some saturation, followed by shows in the Lakota, a good producing horizon in the nearby Quealy field. A core in the Lakota at 5,957-71 ft. resulted in the recovery of 9 ft. of saturated sand, but packer failed in attempted drill-stem test. A core from 5,971-76 ft. had a recovery of 5 ft., top 2 ft. sandy shale, bottom 3 ft. sand with stains and odor. Drill-stem test at 5,965-76 ft., open 30 minutes, recovered 120 ft. of clean oil and 2,050 ft. of oil-cut water. Flowing pressure was 1,200 psi., shut-in pressure, 2,350 psi. It is preparing to core ahead.

Hidden Dome.—Mackinnie Oil & Drilling Co. 1 Broome, SW SW SW 30-48n-90w, Hidden Dome, Washakie County, Wyoming, a mile northwest of Ohio Oil Co.'s Tensleep discovery and on the opposite side of the apex, had water in the Tensleep, top at 5,100 ft., and at 5,206 ft. started plugging back to test saturation in the Embar encountered on the way down.

Cut Bank Madison lime wells.—Carter Oil Co. 5 Larmon, C SW SE 12-36n-6w, Cut Bank field, Montana, which extends the north Madison lime pool one location to the south, flowed 409 bbl. in 24 hours through ½-in. choke from the Madison at 3,046-3,100 ft. after acidizing with 1,000 gal. Union Oil Co. 2 McNamara Unit, C SW SW 14-36n-5w, 2½ miles north and 4 miles east of nearest lime producers, tested 17,000,000 cu. ft. of gas at 2,866 ft. when plug on 7-in. was drilled at that depth. Gas then was killed with water to drill into the sand with cable tools.

COLORADO WILDCAT FAILURES

Yellowbank, Pueblo County: Yellowbank 1 State, NE SE NE 26-24s-61w, TD 833 ft., water in Lakota at 832 ft., plugged and abd.

Black Canon, Delta County: W. D. Broadhead 1 Spaulding Brothers, SE NE 5-15s-94w, TD 683 ft., hole full of water, abd. in unidentified sand on top of granite.

Chromo, Archuleta County: M. J. Florence 1 Bigbee-Federal, NE SW NW 17-33n-1e, TD 2,516 ft., sulfur water in Dakota at 2,430 ft.

MONTANA SUCCESSFUL WILDCAT

Reagan, Glacier County: Montana Power Co. 1 Tribal-355, SE SE SW 10-37n-7w, TD 3,770 ft., flowed 47 bbl. last 24 hours, Kootenai 3,072 ft., Sunburst 3,450 ft., Cut Bank 3,490 ft., Ellis, 3,525 ft., Madison 3,694 ft.

KANSAS

Stafford County Test Makes 60 Bbl. Per Hour

ED ADAIR 1 Howard, NW NW SE 15-22s-13w, Stafford County, is estimated at 60 bbl. oil per hour, after acidizing a zone 111 to 117 ft. in the Lansing, which was topped at 3,394 ft. After acid treatment, well filled 2,500 ft. with oil in 2 hours, and operators are unable to lower oil below 1,800 ft. by bailing. The test was drilled to 3,805 ft., 8 ft. in the Arbuckle, and plugged back above the Arbuckle before testing the Lansing.

H. H. & B. Drilling Co. 1 Richards, SE SW SE 17-11s-18w, Ellis County, has pipe set on top of Arbuckle logged at 3,465 ft., to test oil show. Total depth is 3,471 ft.

Sohio Petroleum Co. 1 Schrepel, SE SE SE 12-21s-12w, Stafford County, has pipe set to test oil show in Arbuckle lime. Lansing was found at 3,185 ft. and Arbuckle at 3,480 ft. Total depth is 3,515 ft. Drill-stem test 76 and 98 ft. in Lansing had gas in 6 minutes and recovered 500 ft. of oil-cut mud.

Aladdin Petroleum Corp. 1 Dugan, NW NW SE 7-28s-1w, Sedgwick County, a new pool opener about 7 miles southwest of Wichita, flowed 290 bbl. 41.5°-gravity oil on a 13-hour test and was completed with a bomb potential of 2,955 bbl. Production is from the top 4 ft. of the Simpson, which was topped at 3,659 ft. Drill-stem test 6 to 51 ft. in the Mississippi lime, which was topped at 3,332 ft., had gas flow of 3,690,000 cu. ft. per day and recovered 150 ft. of clean oil, free of water.

KANSAS WILDCAT FAILURES

Barber County: J. M. Huber et al 1 Baker, NE NE NE 17-30s-14w, dry, TD 4,705 ft., Lansing-Kansas City 3,987 ft., conglomerate 4,485 ft., Viola 4,505 ft., Simpson 4,538 ft., Simpson sand 4,540 ft., Arbuckle 4,654 ft.

Butler County: Sam Springer 1 Shinn, NW NW SE 30-29s-8e, dry, TD 2,730 ft., Mississippian 2,680 ft.

Marion County: Joe Moren & H. & M. 1 Klenda, SE SE SE 15-19s-4e, dry, TD 2,393 ft., Kansas City 1,815 ft., Mississippian 2,338 ft. with a slight stain of gas.

Norton County: Cities Service Oil 1 Armstrong, SW SE SW 25-5s-22w, dry, TD 3,881 ft., Heebner 3,502 ft., Dodge 3,523 ft., Lansing-Kansas City 3,544 ft., Basal Kansas City 3,742 ft., Gorman 3,790 ft., Granite Wash 3,810 ft., Granite 3,867 ft.

Rooks County: Tom Palmer 1 Ryan, SW SW NE 16-9s-18w, dry, TD 3,756 ft., anhydrite 1,424 ft., Lansing-Kansas City 3,284 ft., Arbuckle 3.735 ft.

Rush County: H. H. & B. Drilling et al 1 Bartz, SW SE NW 23-19s-17w, dry, TD 3,950 ft., anhydrite 1,188 ft., Lansing-Kansas City 3,516 ft., conglomerate 3,830 ft., Arbuckle 3,864 ft.

Crown Oil Co. 1 Weber, NE NE NE 12-19s-16w, dry, TD 3,693 ft., anhydrite 1,049 ft., Heebner 3,263 ft., Lansing-Kansas City 3,334 ft., conglomerate 3,593 ft., cherty conglomerate 3,624 ft., Arbuckle 3,648 ft., Regan 3,665 ft.

Woodson County: Iowa Oil & Refining 1 Putkett, NW NE NE 7-26s-14e, dry, TD 1,575 ft., Mississippian 1,498 ft.

OHIO, KENTUCKY

Hemlock Grove Pool Gets Extension

COLUMBUS.—The Nollem Oil & Gas 2 Waid Bing, Section 1, Bedford Township, Meigs County, made 75 bbl. in 20 hours after shot, the largest well in the south end of the Hemlock Grove pool. The well also extends the pool 700 ft. to the south.

Lorain County accounted for two of the best gas wells of the week. Ohio Fuel 1 David Simon, Lot 49, Penfield Township, came in with an open flow of 4,160,000 cu. ft. natural. The gas was in the upper Clinton at 2,571-81 ft. In Pittsfield Township, Ohio Fuel 1 E. I. Miller, Lot 98, made 1,950,000 cu. ft. natural, with the Clinton at 2,190-98 ft.

In the Sayre pool in Bearfield Township, Perry County, the Ohio Fuel 1 Addie Rogers, Section 27, had a small gas show in the Clinton sand and 1,130,000 cu. ft. in the Medina sand. Clinton sand was reported at 3,804-47 ft. and the Medina, topped at 3,914 ft., was drilled to 3,920 ft.

The Pittsburgh Oil & Gas Co. have staked a wildcat location on the L. F. Larrick tract in Section 20, Brookfield Township, Noble County. The test will go to the Clinton sand at around 5,100 ft., and is 2½ miles southwest of an old Clinton test which had a small gas showing.

EASTERN KENTUCKY

ASHLAND.—Only one completion was reported in this area during the past week. Kentucky-West Virginia Gas Co. finished its No. 856 on the Sallie Howard land in Magoffin County at 993 ft., with 158,000 cu. ft. of gas in Salt sand.

The same company noted locations in the No. 867, Clyde Taylor property, Pike County; No. 868, Wilson Short property, Knott County; No. 869, J. C. Mullins property, Pike County, and No. 5746, M. B. Goble property, Martin County.

WESTERN KENTUCKY

OWENSBORO.—F. J. Fleming et al 1 B. Melton, 7-N-23, Webster County, is drilling at 2,454 ft.

Russell Johnson 1 C. C. Whitefield, 1-K-25, Hopkins County, a well abandoned by Fure Oil Co. in 1944, is being re-worked to set pipe and test Tar Springs to 2,300-20 ft. Old total depth is 2,967 ft.

INDIANA

EVANSVILLE.—H. E. Ledbetter et al 1 Elkins, NW SW NE 12-1s-12w, Knox County, recovered 1,205 ft. oil, 120 ft. oil and gas-cut mud, and 30 ft. mud on drill-stem test at 2,153-63 ft. in Benoist sand. Total depth is 2,167 ft. Pipe has been set to test. This prospective pool opener is about 3 miles east of Mt. Carmel pool.

OKLAHOMA

Lower McLish Productive In Eola Discovery Well

SOHIO PETROLEUM CO. 1 Howard, SE SE NW 17-1n-2w, Garvin County, the discovery well of the Eola pool, which was killed after producing about 50,000 bbl. in order to test the full section of McLish, had basal McLish at 10,713 ft. and at 10,818 ft. was still in McLish. With packer set at 10,550 ft., drill-stem test was run using 2⅞-in. pipe with ½-in. bottom choke and ¾-in. top choke. During first hour, well flowed the water load plus 28 bbl. oil. At the end of 6 hours, the well was flowing 28 bbl. oil per hour. The well was originally produced from pay zone at 10,202-34 ft.

Sinclair Prairie Oil & Gas Co. 1 McDaniel, SE SE 35-5n-4w, McClain County, on drill-stem test at 10,100-74 ft., flowed 12 bbl. 47.8°-gravity oil per hour and gas volume of 3,680,000 cu. ft. per day. A second drill-stem test at 10,174-10,202 ft. had gas in 4 minutes and oil in 9 minutes. Gas volume was estimated at 7,895,000 cu. ft. per day and oil at 20 bbl. per hour. This well gives the East Lindsay pool an important extension 1 mile west and ¼ mile north.

Carter Oil Co. 1 Roady-Colley, SE NE 6-1n-1w, Garvin County, the fifth producer in the Katie pool and a southwest diagonal offset to the pool opener, has been completed with initial gage of 168 bbl. oil per day through 9/64-in. choke, casing pressure being 1,600 psi. and tubing pressure 990 psi.

N. E. Biffle et al 1 Pharoah, NW NW NW 15-3n-2w, Garvin County, the reworked dry hole originally abandoned in 1934 and now on production, making about 200 bbl. oil per day, has been offset on four sides by locations. Biffle 2 Pharoah is a south offset on 40-acre spacing to the discovery well, while Magnolia has made direct north, east, and west offset locations.

OKLAHOMA SUCCESSFUL WILDCATS

Garvin County: N. E. Biffle 1 Pharoah, NW NW NW 15-3n-2w, flowed 210 bbl. of 42°-gravity oil per day from sand at 5,63-71 ft. through 18/64-in. tubing choke, gas-oil ratio 860, TD 5,627 ft.

Okfuskee County: John M. Halko et al 1

Wells, SW NE SE 12-11n-6e, pumped 60 bbl. of 40.3°-gravity oil per day from Calvin at 2,869-84 ft., Oswego 2,694 ft., broken shaly sand 2,827 ft., shale 2,839 ft., tight sand 2,840 ft., TD 2,884 ft.

OKLAHOMA WILDCAT FAILURES

Comanche County: Nixon Petroleum Co. 1 Richardson-Urfer, SE SE SE 19-1s-12w, dry, TD 2,018 ft., sand 1,986-2,000 ft., no shows.

Cotton County: Akin-Demock 1 Fox, NW SE SW 28-2s-12w, dry, T D1,597 ft., no shows.

J. Ben Russell 1 Gilliam, NW NW SW 35-2s-12w, TD 2,106 ft., sand 1,714-32 ft., 1,856-70 ft. and 1,920-26 ft., no shows.

J. W. Baldwin 1 Jenson, NW NW NW 21-4s-10w, TD 1,623 ft., no shows.

Griffen et al 1 Keeter, SW SW NE 27-4s-10w, dry, TD 1,809 ft. in shale, soft sand 1,025-35 ft., sand 1,644-58 ft., lime 1,743-83 ft.

M. N. Massad 1 Harper, SW SW SW 5-4s-9w, dry, TD 2,009 ft., sand 1,565-1,645 ft., sandy lime 1,765-80 ft., sandy shale 1,783-1,800 ft., sand 1,832-65 ft.

E. P. Griffen et al 1 Malcomb, SE SE NE 2-5s-10w, dry, TD 1,812 ft., sand 1,170-81 ft., no shows.

Creek County: Mercury Drilling Co. and P. G. Lake 1 Beck, NE NE SW 11-5n-8e, dry, TD 3,215 ft., Layton 1,250 ft., Checkerboard 1,460 ft., Cleveland 1,520 ft., Big Lime 2,300 ft., Oswego 2,360 ft., Prue 2,380 ft., Inola 2,801 ft., Bartlesville 2,821-82 ft., first Dutcher 3,192-3,200 ft. with show of oil, second Dutcher 3,204 ft.

Garvin County: Carter Oil Co. 1 Helvey, SE NW 25-2n-2w, dry, TD 7,136 ft., Hoxbar sand 6,122-59 ft., Deese 6,159 ft., sand 6,-192 ft., Gibson 6,409 ft., Caney 6,517 ft., Hunton 7,065 ft. with stain of oil.

Hughes County: R. Olsen & Beebe & Berry 1 Clark, SW SW NE 21-8n-9e, dry, TD 3,589 ft., Calvin 816 ft., Senora lime 1,295 ft., Allen sand 1,342 ft., Inola 2,150 ft., salt sand 2,208 ft., brown lime 2,558 ft., Booch 2,775-2,805 ft., Gilcrease 2,887 ft., Gilcrease sand 2,902-30 ft., tight sand 2,980-97 ft., sand 2,021-44 ft. sand 3,050-56 ft., Wapanucka 3,216-60 ft., Union Valley 3,530-42 ft., sandy shale 3,548-56 ft.

Jackson County: Bill Kiker et al 1 Dean, NW NW NE 19-1n-19w, dry, TD 1,739 ft. in shale, Granite Wash 1,541-48 ft., with show of oil.

Marshall County: Marvin Neff 1 Lewis, SE SE NW 7-5s-5e, dry, TD 600 ft., Springer 450 ft., no shows.

Noble County: J. E. Trigg 1 Groom, SE NW NE 10-20n-1w, dry, TD 5,463 ft., Avant 3,385 ft., Dewey 3,485 ft., Perry 3,565 ft., Layton 3,905-75 ft., Big Lime 4,355 ft., Oswego 4,492 ft., Mississippian 5,015 ft., Woodford 5,257 ft., Sylvan 5,300 ft., Viola 5,350 ft., dolomite 5,415 ft., Wilcox 5,427 ft., second Wilcox 5,452 ft.

Oklahoma County: Harper-Turner & Phillips Petroleum Co. 1 Rodkey, SE SE NE 18-14n-3w, dry, TD 6,745 ft., Pawhuska 3,260 ft., Oread 4,015 ft., Tonkawa 4,245 ft., Checkerboard 5,295 ft., Oswego 5,945 ft., sand 6,165 ft., Base Pennsylvanian-Hunton 6,195 ft., Sylvan 6,335 ft., Viola 6,445 ft., dolomite 6,702 ft., Wilcox 6,715 ft.

Seminole County: T. N. Berry & Co. 1-A Harjo N/2 NE SE 24-6n-6e, dry, TD 1,598 ft., Lower Calvin 1,588 ft.

Stephens County: William H. Atkinson 1 Pace Edwards, NE SE SE 3-3s-6w, dry, TD 2,340 ft., sand 905-25 ft., with show of oil, lime 2,180 ft., dense lime 2,243-2,304 ft., green shale 2,304-40 ft.

Amerada Petroleum Co. 1 Apala, SE NW SW 4-4s4w, dry, TD 3,763 ft., Hoxbar 900 ft., sand 2,010-20 ft. with stain of oil, sand 2,690-2,745 ft., Arbuckle 3,080 ft.

Tillman County: S. D. Johnson 1 Royce, SE SE SE 13-1s-17w, dry, TD 1,064 ft., no shows.

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ILLINOIS

Prospective Extensions In Three Counties

MATTOON.—Central Pipe Line et al. 1 Poole, NW SW NE 25-6s-9e, White County, on drill-stem test of Lower O'Hara at 2,963-87 ft., had gas in 11 minutes, and recovered 870 ft. clean oil and 240 ft. water. Rosiclare was topped at 3,008 ft. and McClosky at 3,047 ft. Total depth is 3,138 ft. This test is a south outpost well to the Storms pool.

On southwest side of the North Noble pool, Central Pipe Line Co. et al have completed 1A Correll, SE SW SW 26-4n-9e, Richland County, with initial production of 1,500 bbl. per day after acidizing Rosiclare pay at 2,936-45 ft. with 5,000 gal. Total depth is 2,968 ft.

V. M. Scheef et al 1 Watkins, NW NE 25-2s-1e, Jefferson County, is being cleaned out to test oil show in Benoist at 2,030-36 ft. This test is located on northeast side of the Woodlawn pool.

ILLINOIS SUCCESSFUL WILDCATS

Clay County: Robinson and Puckett 1 Coldasure, NE NW NE 11-4n-5e, IP pumped 80 bbl., perf. 2,581-82½ ft. in McClosky, Ste. Genevieve 2,557 ft., McClosky 2,581 ft., TD 2,703 ft., PB 2,590 ft.

Crawford County: Brinkley and King 1 Springer, SE NW NW 10-6n-12w, IP 2 bbl., from Pennsylvanian sand, shot 20 qt. 980-90 ft., Pennsylvanian sand 963 ft., TD 995 ft.

Gallatin County: Cities Service 1 Bayley, NW NW NE 24-7s-9e, IP 77 bbl. from Waltersburg 2,278-89 ft., shot 50 qt., TD 2,289 ft., Lower Menard 2,233 ft., Waltersburg 2,265 ft.

ILLINOIS WILDCAT FAILURES

Cumberland County: M. H. Richards 1 Cobble, SE NW NW 4-10n-10e, dry at 875 ft., Pennsylvanian sand 565 ft.

Clay County: Superior Oil Corp. 1 Martin, NW NE SW 14-3n-5e, dry at 3,038 ft., Upper Kincaid 1,909 ft., Golconda 2,451 ft., Aux Vases 2,833 ft., Ste. Genevieve 2,879 ft.

Clinton County: C. R. Winn 1A Hemminghouse, NE NW NE 1-2n-1w, dry at 1,546 ft., Menard 1,056 ft., Golconda 1,286 ft., Benoist 1,535 ft.

Franklin County: Will Lewis 1 Neuf, SE NE SE 29-5s-2e, dry at 2,730 ft., Menard 1,975 ft., Glen Dean 2,216 ft., Cypress 2,486 ft., Renault 2,719 ft.

Gallatin County: Gilliam Drilling Co. 1 Orr, NE NE NW 28-7s-10e, dry at 2,972 ft., Kincaid 1,699 ft., Menard 2,046 ft., Tar Springs 2,205 ft., Aux Vases 2,771 ft., Ste. Genevieve 2,794 ft.

Hamilton County: Calvert and Willis et al 1 Leathers, NW SW NE 2-6s-5e, dry at 3,465 ft., Glen Dean 2,661 ft., Cypress 2,985 ft., Aux Vases 3,203 ft., McClosky 3,289 ft.

Perry County: Collins Brothers 1 Waldman, SE NE NW 7-4s-1w, dry at 1,355 ft., Tar Springs 869 ft., Glen Dean 947 ft., Cypress 1,159 ft., Benoist 1,312 ft.

Richland County: A. J. Slagter, Jr., 1 Couch, NW NW NE 26-2n-14w, dry at 3,042 ft., Glen Dean 2,430 ft., Cypress 2,706 ft., Ste. Genevieve 2,984 ft., McClosky 2,987 ft.

Sullivan County: Roy Meyers 1 Failing, SE SW 19-8n-10w, dry at 640 ft., Pennsylvanian 439 ft.

Wayne County: E. P. Robinson 1 Wood, SW SE SW 23-2s-5e, dry at 3,348 ft., Glen Dean 2,654 ft., Aux Vases 3,134 ft., Fredonia 3,250 ft., McClosky 3,252 ft.

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Among the

Drilling Contractors

Four Drilling Companies Move Home Offices

Four drilling companies have moved their home offices in recent weeks. **J. R. Sharp Drilling Co.**, formerly in Midland, Tex., has moved to Fort Worth with offices in the Fort Worth Club Building, according to C. A. Urice, general superintendent. **Wood & Hurt** have moved their offices to Odessa from Wichita Falls. Partners in the firm are Frank Wood and J. A. Hurt. **Julius Stolns & Sons** are changing their home base from Louisville, Ohio, to Saratoga, Wyo. **D. D. Thomas & Sons** now have offices in the McBurnett Building, San Angelo, Tex. They were formerly located at Artesia, N. M.

Drilling Mud Course Scheduled for Lindsay

A second short course for the Garvin-McClain area of Oklahoma on instruction in handling drilling mud for field men will be held at the Lindsay school building, starting Monday, July 7. This is another in the series of short courses being sponsored in Oklahoma by the American Association of Oilwell Drilling Contractors and the Oklahoma state board for vocational education.

About 40 drilling-crew members participated in a similar course held at Lindsay last October. To date, in Oklahoma, courses have been held at Oklahoma City, Duncan, Seminole, and Holdenville.

Fillmore Drilling Co., Bakersfield, Calif., has been formed by M. I. Fillmore and H. G. Edelman.

Young Drilling Co., Edmonton, Alta., has the contract for Imperial-Leduc 8, LSD 7, 26-50-26w4, in the Leduc field.

Guy Mabee Drilling Co., Midland, Tex., has work under way at Sunray Oil Corp. 1 J. E. Parker, a 10,000-ft. exploratory test in west central Ector County, in the Permian basin. Location is between shallow production in Harper and Goldsmith fields.

George Terry Drilling Co. is grading location for a new test in the Coalinga area of Fresno County, California, which will be drilled by W. T. and Porter Sesnon. Location of the well will be in SW 2-21s-14e. This

A Bass & Dillard Drilling Co. crew on the Gulf 432 Goldsmith, Ector County, Texas. Front row: H. W. Welch; R. L. Williams; Ebb Misenhiemer, driller; and Leo Blaschke, driller. Back row: Jack Manning, A. L. Johnson, and W. O. Nelson

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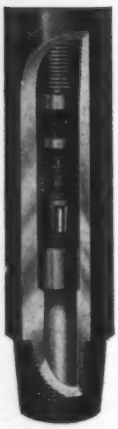

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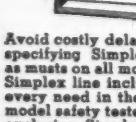

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company has also received contract to drill wells 4, 5, and 6 for Finley Co. in Coalinga field in 1-21s-14e.

C. H. Withers & Co., Lloydminster, Sask., have contract for 10 wells to be drilled for Sioux Petroleums in the Lone Rock area of Lloydminster field, the first test to offset the Lone Rock-British Dominion producer.

McQueen & Clevenger Drilling Co. will drill Continental Oil Co. 1 Royce Lankford to 10,000 ft. to test the Ellenburger, in southern Chaves County, New Mexico. Location is SW SE 2-14s-26e, on a block of approximately 6,000 acres Continental holds adjacent the town of Hagerman.

Gene Reid Drilling Co., Bakersfield, has been awarded contract by McKeon & Young to drill a wildcat venture in 29-30s-29e, in the Edison area of Kern County, California. This company at present is also drilling seven other wildcat tests for various concerns in the San Joaquin Valley.

Brown Drilling Co., Long Beach, will be the contractor for the Cleveland Oil Co. A-6 Machado, a deep test in the Baldwin Hills sector of the Inglewood field, California. Location for the test has not been announced as yet.

Loffland Bros. Drilling Co., Tulsa, has the contract to deepen the Continental Oil Co. 1 K. C. L.-L, 11-11n-22w, in the San Emigdio area of Kern County, California. The well will be deepened from the present total depth of 10,424 ft.

California Commercial Drilling Co., Los Angeles, has the contracts to drill two new wells for Obispo Oil Co. in Midway-Sunset field of Kern County, California. Location of the two wells will be in 32-12n-23w.

General Drilling Co., Los Angeles, is preparing to drill the 1 Fitzhugh, a wildcat venture in the Poso Creek area of Kern County, California. Location of the test will be N½ SE¼ 24-27s-27e.

Brewster-Bartle Drilling Co., Houston, has contract to drill Continental Oil Co. 1 R. E. Holcombe, wildcat 10½ miles north of Groveton in Trinity County, in J. W. Bowman Survey, Abstract 102, Texas. Derrick is being moved to the location.

Bankhead Drilling Co. has brought in a producer for Shell Oil Co., Inc., the 17 River & Rails Terminals, in Good Hope field, St. Charles Parish, Louisiana. Initial production was 119 bbl. oil per day.

Meredith, Clegg & Hunt, Houston, having completed Fidelity Oil & Royalty Co. 1 Brown as an oil producer in Sugar Valley field of Matagorda County, Texas, have moved over and are drilling at 3,000 ft. on the 1 Edwin Hawes Jr. for Mid-States Oil Corp. in the same field. Contract depth is 9,300 ft.

Texas State Drilling Co. has contract and is moving in tools to drill Warren Wright 1 Moss Estate, wildcat, in the R. E. Booth Survey, Abstract 34, 3½ miles west of production at Willow Slough field, Chambers County, Texas. Contract depth is 9,200 ft.

Nicklas Drilling Co., Houston, has been awarded contract to drill Continental Oil Co. 1 Pearl R. Jackson, wildcat in Jackson Ranch area of Chambers County, Texas, T&NO Survey, Section 15, Abstract 284. Roads are now being built to location.

Santa Fe Drilling Co., Santa Fe Springs, Calif., has contract to drill Union Oil Co. 62 Bell, 35-9n-33w, in Cat Canyon field of Santa Barbara County, California. At present, this company is drilling ahead at 4,534 ft. in Union Oil Co. 58 Bell, 26-9n-33w, and making production tests at Union Oil Co. 56 Bell, 35-9n-33w. In the same field, **Camay Drilling Co.** is drilling ahead at 6,198 ft. at Douglas Oil Co. well No. 14, 27-9n-33w, and at 5,339 ft. at Douglas Oil Co. well No. 11, 22-9n-33w.

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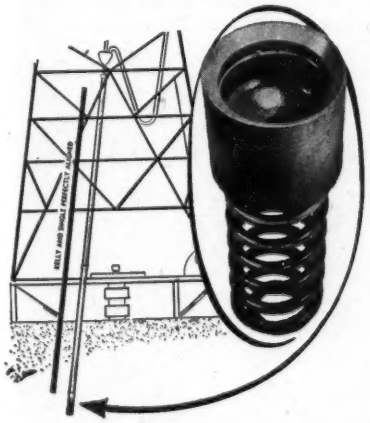

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HOUSTON, TEXAS

Carl Short, Inc., Houston, has rigged up and is ready to spud Amerada Petroleum Corp. 1 Charles G. Hooks, wildcat in the BBB&C Survey, Tyler County, Texas, 6 miles east of Warren townsite. Contract depth is 8,700 ft.

H. H. & B. Drilling Co. has completed its 4 Cabbage, SW NE SW 7-9-18, Rooks County, Kansas, for a flowing potential of 297 bbl. per day. The well has a total depth of 3,497 ft. and is producing from the Arbuckle.

Fowler Drilling Co., Long Beach, has rig up to drill the Brookline Oil Co. 6 Harbor, 4-5s-13w, in Wilmington field of Los Angeles County, California.

Bennett & Roberts Drilling Co. and Mid Plains Oil Corp. have staked two outposts to Atherton pool, Russell County, Kansas. They are the 1 Olson, SE SW 18-13-14, and the 1 New Estate, SW SW 18-13-14.

San Joaquin Drilling Co., Los Angeles, is rigging up to begin drilling at Pacific Western Oil Corp. 1 Enmark, 5-17s-19e, a new well in Riverdale field of Fresno County, California.

Vierson & Cochran, Okmulgee, Okla., have contract on a deep Wilcox test for Universal Oil Co. 8 miles west of Washington, west central McClain County, Oklahoma. This Anadarko basin wildcat is the 1 Ada Bell Moore, C NE NE 20-7n-4w, and will probably go deeper than 10,000 ft. It is on a 10,000-acre spread of leases with nearest production in Washington-Blue Hill area 6 miles to the northeast.

Claude R. Wentworth, Tulsa, is the contractor for a Skelly Oil Co. wildcat, the 1 Alexander, SE SE SW 6-33-12, Barber County, Kansas.

W. L. U. Drilling Co. and Nixon Petroleum Co. have brought in a producer from the Megargel lime southwest of Randlett, Cotton County, Oklahoma. The well, 1 Warren, NE SE SE 1-5s-13w, hit the magargel at 1,594-1,615 ft.

Harbar Drilling Co., Wichita, swabbed 180 bbl. oil in 24 hours from the J. M. Huber 1 Baugher "A," SE SE NW 23-12-21, Trego County, Kansas.

Scott Drilling Co. has brought in an outpost 1½ miles southeast of Kimball Lake field, Newaygo County, Michigan, for 100 bbl. per hour. The well is the 1 Mitchell, NE NW NW 24-12-13w, and hit the pay at 2,335-41 ft. Scott is moving in rotary to drill a 20-acre offset at SW SE SW 13-12n-13w.

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TOOL JOINT THREADS

Jimmy Gray's 500 Ton Tool Joint Compound* puts a protective film on the threads which prevents galling and washouts . . . makes breaking-out easier. It withstands highest pressures; is unaffected by heat and moisture . . . will not harden.

"You Can Always Break the Joint"

SOLD BY SUPPLY STORES EVERYWHERE

Distributed by

STANDARD OIL SALES CO.
Houston 1, Texas
P. O. Box 203 Charter 4-5848

*Trade mark Reg. U. S. Pat. Off.

STATISTICS and T

WEEKLY WELL COMPLETIONS . . . WEEK ENDED JUNE 28, 1947

	Total of all wells					Cum.		Wildcat completions and discoveries					Cumulative total, 1947				
	Comp.	Oil	Gas	Dry	Footage	1947	1946	Oil	Dist.	Gas	Dry	Total	Oil	Dist.	Gas	Dry	Total
New York	46	24	0	*22	67,992	684	776	0	0	0	0	0	3	0	0	2	5
Pennsylvania	31	14	3	†14	50,222	1,368	1,986	0	0	0	0	0	0	0	0	1	1
West Virginia	23	3	17	3	58,681	382	347	0	0	0	0	0	0	0	1	0	1
Ohio	20	4	9	‡7	57,252	612	579	0	0	0	0	0	0	0	3	25	28
Indiana	18	8	0	10	31,882	285	164	0	0	0	0	0	8	0	0	22	30
Kentucky	12	6	2	4	18,494	288	234	0	0	0	0	0	6	0	0	22	28
Illinois	55	29	1	25	138,746	919	1,033	3	0	0	10	13	33	0	0	158	191
Michigan	20	9	6	5	34,720	362	386	0	0	1	2	3	5	0	8	101	114
Kansas	49	26	6	§17	154,991	1,198	960	0	0	0	8	8	19	0	10	148	177
Neb., Mo., Iowa	0	0	0	0	0	2	9	0	0	0	0	0	0	0	0	2	2
Oklahoma	112	60	11	¶41	298,642	1,963	1,169	2	0	0	18	20	42	3	6	333	384
Texas	166	107	5	54	736,137	4,132	3,957	7	1	3	28	39	144	26	44	632	846
North Central (Dist. 7B & 9)	60	35	0	25	145,979	1,298	1,420	2	0	0	9	11	52	0	7	210	269
West (Dist. 7C & 8)	39	33	0	6	199,860	998	823	1	0	0	5	6	14	0	3	76	93
Panhandle (Dist. 10)	4	4	0	0	11,556	203	173	0	0	0	0	0	1	0	1	2	4
Eastern (Dist. 5 & 6)	10	7	0	3	52,715	235	368	1	0	0	2	3	4	0	3	53	60
Gulf Coast (Dist. 3)	29	14	4	11	195,740	750	884	2	1	2	7	12	35	19	19	134	207
Southwest (Dist. 1, 2 & 4)	24	14	1	9	130,287	648	289	1	0	1	5	7	38	7	11	157	213
Louisiana	18	9	2	7	96,632	600	649	0	0	1	3	4	18	11	7	84	120
Northern	12	6	1	5	51,807	313	352	0	0	1	2	3	1	1	3	45	50
Southern	6	3	1	2	44,825	287	297	0	0	0	1	1	17	10	4	39	70
Arkansas	7	5	0	2	32,388	127	90	0	0	0	1	1	0	0	0	24	24
Mississippi	10	7	0	3	73,318	219	133	0	0	0	0	0	0	0	1	44	45
Southeastern States	0	0	0	0	0	22	22	0	0	0	0	0	0	0	0	19	19
Montana	7	6	1	0	17,671	108	142	1	0	0	0	1	2	0	1	12	15
Wyoming	1	1	0	0	5,465	100	82	0	0	0	0	0	7	0	2	16	25
Colorado-Utah	7	4	0	3	30,323	89	66	0	0	0	3	3	1	0	1	21	23
New Mexico	11	9	0	2	49,390	251	183	0	0	0	2	2	4	0	1	19	24
California	41	34	2	5	187,995	972	896	1	0	0	5	6	22	0	3	143	168
Total United States	654	365	65	224	2,140,941	14,683	13,863	14	1	5	80	100	314	40	88	1,828	2,270
Total previous week	655	359	60	236	2,231,506	14,029	13,255	15	2	5	102	124	300	39	83	1,748	2,170
Total June 29, 1946	608	335	50	223	1,865,819			7	0	3	80	90	244	23	58	1,578	1,903

Service wells included: *22, †14, ‡2, §1, ¶4.

CRUDE PRICES AND REFINERY ACTIVITY

GRAVITY SCHEDULES

Top prices include all gravities above grades designated, and low prices include all gravities below grades designated:

Gravity—	Signal Hill, Calif.*	Oklahoma, Kansas	Gulf Coast Tex.†	West Tex.‡
18-18.9	$1.60	....	....	....
19-19.9	1.64	....	....	....
20-20.9	1.68	$1.55	....	$1.42
21-21.9	1.72	1.57	....	1.44
22-22.9	1.76	1.59	....	1.46
23-23.9	1.80	1.61	....	1.48
24-24.9	1.85	1.63	$1.86	1.50
25-25.9	1.89	1.65	1.88	1.52
26-26.9	1.93	1.67	1.90	1.54
27-27.9	1.97	1.69	1.92	1.56
28-28.9	2.01	1.71	1.94	1.58
29-29.9	2.05	1.73	1.96	1.60
30-30.9	2.09	1.75	1.98	1.62
31-31.9	....	1.77	2.00	1.64
32-32.9	....	1.79	2.02	1.66
33-33.9	....	1.81	2.04	1.68
34-34.9	....	1.83	2.06	1.70
35-35.9	....	1.85	2.08	1.72
36-36.9	....	1.87	2.10	1.74
37-37.9	....	1.89	2.12	1.76
38-38.9	....	1.91	2.14	1.78
39-39.9	....	1.93	2.16	1.80
40 and above	....	1.95	2.18	1.82

*Union Oil Co. of California posting.

†For crude from Daboval, El Campo, and Sandy Point. ‡Includes Lea County, New Mexico.

A.P.I. REFINERY REPORT, WEEK ENDED JUNE 21

(Thousands of barrels)

District—	Crude runs, daily avg.	Production: Gasoline†	Kerosine	Gas & dist. oil	Residual	Stocks at refineries, bulk terminals, in transit and in pipe lines: Gasoline*	Kerosine	Gas & dist. oil	Residual
East Coast	856	2,166	403	991	1,804	20,260	6,118	11,665	8,475
Appalachian:									
District 1	99	296	46	98	87	2,293	258	426	253
District 2	72	241	20	44	113	1,045	96	138	121
Ind., Ill., Ky.	798	2,770	279	819	1,008	16,827	1,521	3,837	3,011
Okla., Kans., Mo.	417	1,457	182	501	477	8,322	587	1,685	1,103
Inland Texas	231	1,018	97	135	422	3,582	293	388	715
Tex. Gulf Coast	1,195	3,691	621	1,636	1,570	14,241	2,500	6,749	5,499
La. Gulf Coast	399	1,120	354	651	537	4,177	1,478	2,268	1,473
N. La., and Ark.	68	211	47	57	104	1,832	279	357	127
Rocky Mountain:									
New Mexico	10	41	2	10	20	86	12	38	34
Other Rocky Mtn.	131	412	14	125	226	3,119	108	621	673
California	802	2,259	98	875	2,230	16,093	791	12,663	27,282
June 21, 1947	5,078	15,682	2,163	5,942	8,598	91,877	14,041	40,835	48,766
June 14, 1947	5,164	15,695	1,972	5,981	8,960	93,356	13,094	38,385	47,812
June 22, 1946	4,839	14,371	1,915	5,580	8,403	92,374	14,054	37,067	46,071

*At refineries including natural blended. †Finished and unfinished.

Bureau of Mines crude-oil stocks 235,660,000 bbl. as of June 21—up 758,000 bbl. One year ago 223,883,000 bbl.

FLAT CRUDE PRICES

Representative posted schedules per bbl.	
East Texas	$1.95
Kettleman Hills, California*	2.19
Beauregard Parish	1.90
Illinois Basin	2.07
Pecos County, Texas (Yates)	1.65
Bradford, Pennsylvania	4.30
Eastern Ill. and Western Ind.†	2.07
Tomball, Texas Gulf Coast	2.10

*37°-37.9°. †35° and above.

TRENDS

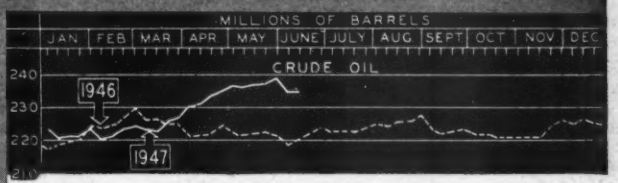
DAILY AVERAGE PRODUCTION FOR WEEK

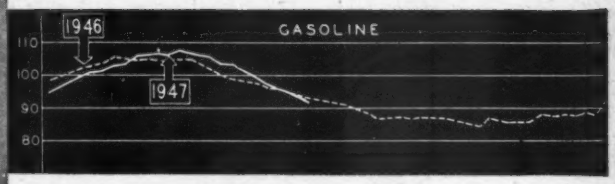
	June 28 crude oil	B. of M. June demand	June 21 crude oil
Alabama	1,100	1,200	1,150
Arkansas	81,000	79,000	82,200
California	920,700	884,000	918,700
Colorado	39,280	40,000	38,330
Eastern	65,500	65,400	65,800
Florida	1,015	600	140
Illinois	187,000	210,000	186,000
Indiana	17,300	18,000	17,700
Kansas	288,600	280,000	294,150
Kentucky	25,900	29,000	26,500
Louisiana	424,750	418,000	424,900
North Louisiana	103,350	.....	103,500
South Louisiana	321,400	.....	321,400
Michigan	41,060	46,000	41,485
Mississippi	96,400	87,000	95,400
Montana	24,630	24,000	25,300
Nebraska	550	600	550
New Mexico	106,000	103,000	106,000
Oklahoma	387,500	385,000	389,900
Texas	2,288,950	2,155,000	2,288,950
Dist. 1 (Southwest)	21,650	.....	21,650
Dist. 2 (Southwest)	166,550	.....	166,550
Dist. 4 (Southwest)	247,720	.....	247,720
Dist. 3 (Gulf Coast)	494,480	.....	494,480
Dist. 5 (Eastern)	39,950	.....	39,950
Dist. 6 (Eastern)	116,100	.....	116,100
East Texas Field	334,000	.....	334,000
Dist. 7-C (West)	39,000	.....	39,000
Dist. 8 (West)	560,750	.....	560,750
Dist. 7-B (W. Central)	39,500	.....	39,500
Dist. 9 (N. Central)	141,500	.....	141,500
Dist. 10 (Panhandle)	87,750	.....	87,750
Wyoming	118,400	114,000	120,340
Miscellaneous	.....	200	.....
Total United States	*5,115,635	4,940,000	5,123,295
Change from prev. wk., dn.	7,660		

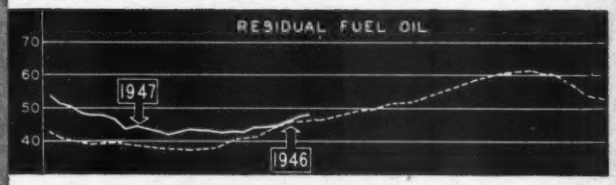
Total production January 1-June 28..... †879,795,610 bbl.
Same period last year (crude plus cond.).. 836,625,429 bbl.

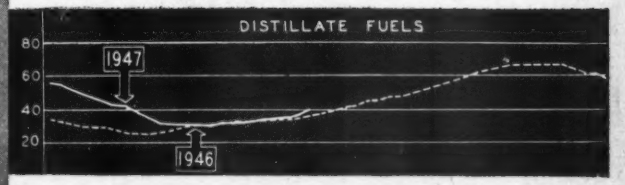
*Not incl. 33,000 bbl. condensate. †Incl. 5,138,870 bbl. condensate.

OIL STOCKS IN THE UNITED STATES

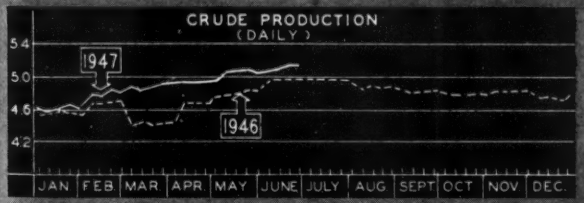


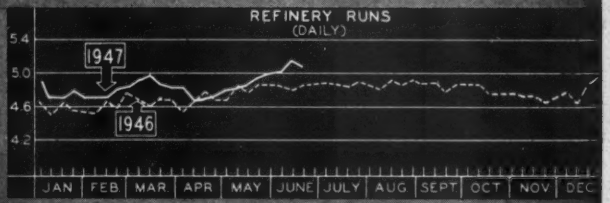




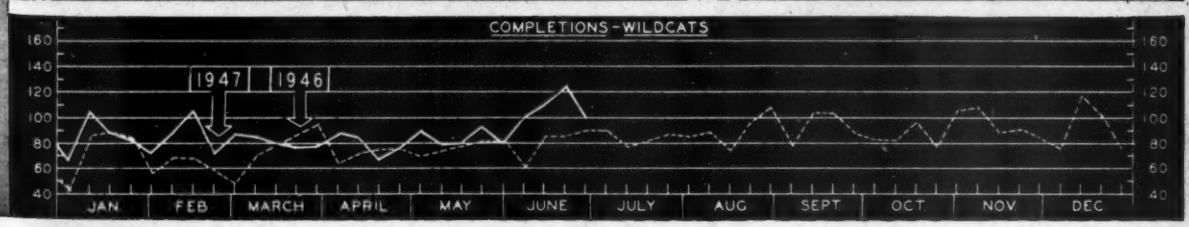


DAILY OPERATIONS





Solid line charts weekly completions, service wells in Eastern area included.



PENBERTHY
AUTOMATIC
INJECTORS

The accepted method for assuring an uninterrupted supply of feed water to oil field boilers. Penberthy Automatic Injectors will supply feed water to boilers at minimum cost, are quickly and easily installed, reliable under most severe operating conditions, require little attention and no careful handling. Highest quality design and rugged construction.

PENBERTHY INJECTOR CO.
DETROIT, MICH. Canadian Plant WINDSOR, ONTARIO

McCORD
"CLEARSITE"
SIGHT
FEED

McCord "Clearsite" plastic sight feeds provide a new degree of visibility and clearness, supplying positive proof of oil delivery. Due to its design this sight feed may be used as an independent sight at point of lubrication. As an accessory it can be added to any lubrication system. Specify "Clearsite."

McCORD "SF" LIQUID SIGHT FEED LUBRICATORS

A highly developed lubricator, particularly adapted to cylinder and bearing lubrication. Features: Precision built, most flexible and positive oil delivery system known. Supplied in 1 to 24 feeds. Specify McCord "SF" Lubricator.

For Sale by National Supply Co.

McCORD CORPORATION
DETROIT 11, MICHIGAN
LUBRICATOR DIVISION

MARKETS

MID-CONTINENT market observers last week found it difficult to determine spot-market prices for petroleum products, as an increasing demand and a growing scarcity of products sent quotations and sales figures well past posted prices.

Premiums were being offered for regular gasoline, with little material moving on the spot market, following the second increase since mid-June in the price of natural gasoline. The second price increase, also ¼ cent, brought the Group 3 price to 5.875 and North Texas to 5,375.

On the Gulf Coast, regular gasoline was reported moving at "nearly 10 cents" with most refiners committed through the rest of the year and some talk of contracts for 1948 delivery. Few sources of gasoline for spot sales were available, and these were reported shipping the product at prices ranging from 9.5 to 9.875 cents. Premium gasoline, with posted prices of 9 to 9.5, was reported unavailable.

Price No Question

In the Mid-Continent one refiner declared anyone "with anything to sell can get any premium within reason," with products "tighter than ever, if possible." Price, he suggested, is no longer a question to consumers needing a product.

Gulf Coast refiners predicted there would be no improvement in the supply "through July or August" with dates later than that a subject of controversy. Tank cars for products shipments were reported in continued short supply, with many tied up in long crude hauls.

North Texas refiners said all motor fuel and kerosine was committed through August, leaving little, or none, available for spot sales.

In New York Harbor there was continued evidence of a free seller's market in No. 5 and No. 6 fuel, with some marketers boosting prices 10 cents a barrel and others as much as 20 cents. Most suppliers, however, indicated they will not raise their quotations unless there is a change in prices they are paying.

Crude Increase Talked

Talk of a crude-oil price increase continued to be heard in the industry, highlighted by a report of the Independent Petroleum Association of America describing present prices as "still abnormally low as compared with costs and other prices."

The report said the current average price of $1.89 a barrel throughout the United States is "at least 35 cents a barrel" below the price needed to cover replacement costs and normal margin, and 88 cents a barrel below parity with all other commodities.

The report took issue with the recent statement of Eugene Holman, president of Standard Oil Co. (N. J.), in which he described current prices as "adequate." The report suggested a national average price of $2.25 a barrel as necessary to "cover the cost of replacing and maintaining" the nation's reserves and to account for higher labor and other costs.

Hinting at a further increase in demand for light burning oils, already in extremely short supply, was an announcement by the Bureau of the Census that shipments of oil burners by manufacturers in April were three times as great as those of April 1946.

During April of this year shipments included 99,118 burners, of which 96,210 units, or 96 per cent, were residential-type burners. The shipments showed an increase of 3 per cent over March of this year.

Representative Quotations

Representative spot-market quotations of leading suppliers as of June 30, 1947. Figures are f.o.b. plant for tank-car shipment in cents per gallon, except for residual fuel oil which shows the price per barrel.

GASOLINE, KEROSINE, AND FUEL OILS

	Mid-Continent Group 3	New York Harbor	Texas Gulf Coast
Regular gasoline, 73-75 octane	8-8.5	10.1-10.4* 9.3-9.5†	8.5-9.5
Premium gasoline, 78-80 octane	8.75-9.5	10.2-12	9-9.5
42-44 w.w. kerosine	7-7.375	7.8	7-7.25
No. 2 straw fuel oil	6.125-6.875	6.8-7.1	6-6.5
No. 6 residual	$2.00-2.45	$2.32-2.50	$1.80-2.50

*Branded (74-76 octane); †Unbranded (74-76 octane).

NATURAL GASOLINE

	Group 3	North Texas	N. La.
Grade 26-70	5.875	5.375	5.625
Grade 18-55	7.05	6.45	6.75

LUBRICATING OILS

South Texas

200 vis., No. 2-3 neutral	11-12.5
750 vis., No. 3-4 neutral	13-15.25
2,000 No. 5-6 neutral	14.5-16.75

LUBRICATING OILS

Mid-Continent

150-160 vis. D bright stock, 0-10 p.p.	29
200 vis. No. 3 neutral, 0-10 p.p.	18

Western Pennsylvania

145-155 vis. 10 p.t. bright stock	43
180 vis. 0 p.t. neutral	43

CRUDE-SCALE WAX

Mid-Continent

130-132 A.S.T.M. melting point	7.75

Equipment Men in the News

Frank Reese has been promoted to lead the research mechanical development group of Monsanto Chemical Co. Reese has been group leader in charge of pilot plant operation and is being replaced in this work by **Eli Perry.**

Raymond E. Alford is store manager of another Houston Oil Field Material Co., Inc., service store at 2800 South East 29th Street, Oklahoma City. **Russell Yost, Bob Acuff,** and **G. O. Pool** are fishing tool operators, and **Joe Zackery** is store man.

Harold L. Strader has been appointed sales director of Brown Oil Tools, Inc., and Brown Well Service. He will head a sales organization for these companies to offer an "on-the-spot" engineering and sales service. Previous to his work with the Brown organization, Strader represented Hughes Tool Co. as sales engineer. Prior to his association with Hughes Tool Co. he was with The Texas Co. in the capacity of division petroleum engineer. Strader will establish his headquarters in Houston.

Howard L. Ginaven has been appointed general superintendent of Goodyear Tire & Rubber Co.'s plant in Wolverhampton, England. Ginaven will sail from New York in July on his new assignment. In England he succeeds **H. A. Brittain** who will return to Akron on a new assignment to be announced later.

E. D. Bullard Co., manufacturers and distributors of industrial safety equipment, have appointed Engineering Supply Co., 2656 Main Street, Dallas, as exclusive distributors for company equipment in Texas. **Henry C. Colt** is president of Engineering Supply and **M. E. Wink** is vice president. The company was formerly Wink Supply Co. Under its new name it continues the distribution of geophysical, mill supplies, and safety equipment throughout the southwest.

Harvey M. Harker has been appointed general branch manager of a Monsanto Chemical Co. sales office in the State of Texas. Headquarters of the new office will be in Houston. Assisting Harker is **Kenneth O'Connor,** who will be in charge of office operation.

James H. Binger has been elected assistant vice president of Minneapolis-Honeywell Regulator Co. Formerly with the law firm of Dorsey, Coleman, Barker, Scott & Barber, of Minneapolis, Binger joined Honeywell in 1943 to assist in legal and contractural work in connection with the company's war work. In his new duties, Binger will devote most of his attention to the sales department and will assist **Thomas McDonald,** vice president in charge of sales.

Steve Bechtel, president of Bechtel Corp., has recently sailed for London on the S.S. American accompanied by **Steve Junior** and a party of other company men including Engineer **Joseph Shaw;** the company's barrister and newest director, **Robert L. Bridges;** vice president and Director **Strib Snodgrass,** and Bechtel associate **L. L. (Jack) Sverdrup.** The group plans to hold a series of discussions in London incident to further development of Middle East oil-refinery and pipe-line programs now under way. Field men from Arabia will join them in London. The party plans to return to San Francisco about June 20.

Henry Dersofi has been appointed manager of material assembly of American Car & Foundry Co. replacing **S. S. Dunn,** who recently retired.

Henry W. Kayser has recently assumed new responsibilities at The Falk Corp. with his appointment as supervisor of development engineering. In connection with his enlarged duties, Kayser will be available for field consultation.

R. C. Somerville has been appointed general sales manager of the Plymouth Division of Chrysler Corp. Somerville has had experience in active mechanical and service work as well as executive sales positions.

J. H. Bell, assistant vice president of Foster Wheeler Corp. and head of its public relations and advertising department for over 2 years, has been appointed sales manager of the company's newly created Dallas district. Bell will be in charge of a district that embraces parts of Texas, Oklahoma, Mississippi, and all of Arkansas. His headquarters will be in Dallas.

A. J. Thomas has been named representative in the northern part of South America for Hunt Export Co. Thomas formerly headed his own organization, Thomas Well Service, and has spent the last 10 years in the oil fields of Trinidad and Venezuela. He will make his headquarters in Port-of-Spain, Trinidad, and will cover the oil fields in Trinidad, Venezuela, Colombia, Ecuador, and Peru. **A. D. Bolland,** in charge of the company's office in Buenos Aires, will continue to cover the southern part of South America. **G. M. Stewart,** with headquarters in New York, recently returned from the Pacific Coast where he visited the plant of the Regan Forge & Engineering Co.

Turner G. Garwood has been advanced to the position of sales manager and **Harry Schramm** to field engineer of Otis Pressure

T. G. GARWOOD

HARRY SCHRAMM

Control, Inc., Dallas. Garwood will office at 6705 Navigation Boulevard, Houston, and Schramm will continue to use the general offices in Dallas as his base of operations.

Paul R. Croll has been named assistant to the vice president in charge of the paint division, Pittsburgh Plate Glass Co. In addition, he will have over-all responsibility for manufacturing operations of the various branches of the division. **Dr. William H. Lycan,** formerly director of paint-division research with headquarters at Milwaukee, has been appointed executive director of research with offices at Pittsburgh. He will have jurisdiction over all paint-division research, new product development, promotion, and marketing. **Dr. Howard L. Gerhart,** staff chemist at the Milwaukee research laboratory since 1937, has been appointed director of research for the paint division headquarters at Milwaukee.

J. G. Van Nest recently has been named assistant to O. L. Lear, purchasing agent at Mack Truck Co.'s Allentown, Pa., plant.

Carl White, Jr., president; **R. E. Kirberger,** sales manager, and **L. E. Ferguson,** assistant sales manager, were hosts at a Franks Manufacturing Co. oil show held at the Tulsa plant June 23-24. Some 1,000 oil and equipment men from the Southwest and foreign countries attended the 2-day show which exhibited a varied line of equipment including slim-hole drilling rigs, truck all-service units, skid drilling rigs, remote-control operated rigs, etc. Partici-

CARL WHITE, JR.

R. E. KIRBERGER

L. E. FERGUSON

pating in the demonstration were **R. M. White,** North Texas division manager; **Vern Alley,** manager of sales and services for the Illinois basin; **V. K. Chapman,** sales coordinator; **C. C. Simmons,** works manager; **W. B. Woody,** vice president in charge of engineering; **D. M. Lawrence,** service manager; **Mike Pallein,** superintendent of modification and service center; and **John Province,** Phillips Petroleum Co. representative connected with the development of remote air controls. Other manufacturers' equipment on display included power units made by Detroit Diesel Engine Division of General Motors Corp., Cummins Engine Co., Buda Co., and Waukesha Motor Co.; light plants by D. W. Onan & Sons, Inc.; pumps by Gardner-Denver Co., Oil Well Supply Co., Wheatley Pump & Valve Manufacturer, and Gaso Pump & Burner Manufacturing Co.; and trucks by Four Wheel Drive Auto Co., International Harvester Co., Oshkosh Motor Truck, Inc., and General Motors Corp., Truck and Coach Division.

Richard E. Roberts has been appointed director of a newly created management-relations department at Ford Motor Co. Under the direction of Roberts, the new department will be responsible for development and supervision of policies, plans, and programs covering all phases of management relations within the company, with particular emphasis on relations concerning foremen and supervisors.

John Oswald has been appointed to a newly created executive engineering post with the Ford Motor Co.. An engineering executive for many years, Oswald will serve as executive engineer of styling and body engineering. **George W. Walker,** well-known industrialist designer and styling consultant, will coordinate his activities with Oswald and **Thomas L. Hibbard,** company director of styling.

Plans are now being made to conduct a series of showings in the major oil-producing regions of the United States of General Electric Co.'s most recent "More Power to America" production, the new oil-field electrification program. Showings of the full-color sound motion picture "Lease on the Future," one of the components of the program, will take place soon in California, Texas, Illinois, Oklahoma, and Pennsylvania before audiences of petroleum power en-

gineers, oil companies, equipment manufacturers, and electric utility companies.

J. A. MUSSLER

J. A. Mussler is the new manager of the tubular division of Continental Supply Co. **C. E. Durley** has been appointed manager of the pipe department, moving into this position from the assistant manager's post, where he has served since 1927. **Joseph T. Gailus** has been transferred from the Dallas pipe department to manager of tubular sales for the Tulsa district, with headquarters in Tulsa. Gailus has been with Continental since August 1939, having served in the Houston

C. E. DURLEY

JOSEPH T. GAILUS

area as assistant district manager of tubular sales before moving to the Dallas office.

Sam Turner, formerly of Hughes Tool Co., and **Tip Power**, formerly with Eastman Oil Well Survey Co., have formed a partnership, the T-P Tool Co., with warehouses in Cody and Casper, Wyo., and Rangely and Denver, Colo. The company is now handling the Globe Oil Tool distributorship for the Rocky Mountain states.

Frank V. Long, president of Vapor Recovery System Co., left Los Angeles recently to visit 11 different European countries during a 2-month trip. Several European oil refineries have contracted with the company for the installation of the systems in their plants.

Republic Supply Co., Houston, announces the removal of their store at Griffin, Ind., to Grayville, Ill. **T. J. McDonald** is store manager.

Randolph L. Grisfold, formerly of Jones & Laughlin and Frick-Reid Supply companies, has become associated with **Eric G. Schroeder** of Lucey Products Corp. as sales representative in the Dallas office.

Harold A. Hinty has been promoted to the position of Pacific Coast sales manager in H. K. Porter Co., Inc. He will direct the activities of all sales offices on the Pacific Coast and will maintain headquarters in the Petroleum Building, Los Angeles. **J. F. Morley** has been appointed district sales engineer with offices in Monadrock Building, 681 Market Street, San Francisco, Calif.

V. W. Mitchell, assistant district manager, Republic Supply Co. at Jackson, Miss., has been transferred to the company's Wichita Falls store.

Hugh J. Fraser, vice president of International Nickel Co., Inc., has been placed in general charge of all plant operations of the company in the United States. **John A. Marsh**, assistant general manager of the Huntington (W. Va.) works, has been appointed Fraser's assistant with the title of assistant to the vice president.

George Toth, formerly district sales engineer for Socony-Vacuum Oil Co., Inc., in North and South Carolina, has joined the sales staff of R. H. Sheppard Co., manufacturers of diesel engines. Toth has been assigned to the southern sales territory covered formerly by **Ed McFarland**, who will be transferred to the eastern and New England area.

Richard L. Brummage is the new head of the Cleveland Control of the Controllers Institute of America. Brummage, controller of Dresser Industries, Inc., succeeds **Phillip W. Scott**, who is secretary-treasurer of Bryant Heater Co. Other new officers of the Cleveland Control, which takes in all of northern Ohio, include **Ralph H. Smith**, Cleveland Electric Illuminating Co., vice president; **George C. Houck**, Harris-Seybold Co., secretary; and **Hallis J. Ensign**, Willard Storage Battery Co., treasurer. Directors are: **Ogden Ashley**, Cleveland Pneumatic Tool Co.; **A. C. Gay**, William Taylor & Son; **S. E. Hippensteel**, Allied Oil Co., Inc.; **R. C. Huelsman**, Central National Bank of Cleveland; **M. E. Price**, Thompson Products Co.; **Llewelyn Reese**, Sherwin-Williams; and **George T. Zack**, White Motor Co.

William A. Roberts and **William C. Johnson** have been appointed executive vice presidents, respectively, of the tractor and general machinery divisions of Allis-Chalmers Manufacturing Co. Two new vice presidents for the two divisions of the company are **Marshal L. Noel**, vice president and general sales manager for the tractor division, and **J. L. Singleton**, vice president and director of sales for the general machinery division.

The Hammel-Dahl Co., Providence, R. I., announces the appointment of **Frank J.** and **Arthur T. Carr** as New England sales representatives operating from Boston, Mass., as The Carr Bros. Co.

Representatives of the chemical industry are among the 27 Swiss business men who recently arrived in New York for a tour of the United States. Representatives, their affiliations and locations, are: **Dr. Willy Ernst**, chemist, Dyeing, Bleaching and Finishing Works, Ltd., Winterthur; **Max Huber**, managing director, Scheller & Co., Ltd., chemical products, of Zurich; **Max Keller**, chemist, Dyeing Works, Ltd., Zofingen, and **Eugen Scholl**, manager, Dyeing Works, Ltd., and Apparatus Manufacturing, Ltd., Zofingen.

Jewel L. Hardy, former Northwest Texas representative of Browning-Ferris Machinery Co., has joined the firm of Vaughn & Taylor Construction Co., Wichita Falls, Tex., as general manager. He is well known in Texas to pipe-line and oil contractors as an equipment specialist. As general manager of the firm he will be in charge of the Wichita Falls and field offices and supervise allocation of equipment and materials. Other partners in the firm, engaged in pipe-line construction, are: **D. D. Vaughn**, **Jesse Moore**, **R. L. Taylor**, **H. B. May**, **A. J. Harris**, **Joe Allen**, and **T. D. Vaughn**. **Billie Lou Hallmark** is office manager.

E. B. Fowks, former export sales manager of Emsco Derrick & Equipment Co., has been appointed manager of the ad-

E. B. FOWKS

K. F. FORSYTH

vertising and sales promotion department. In his new position he will not only head the advertising and sales promotion department, but will also retain jurisdiction over the patent department. **K. F. "Ted" Forsyth**, manager of California sales, has been appointed export sales manager to succeed Fowks. In his new position he will have charge of California and all export sales.

Joe Cannon has been transferred from Green Head Bit & Supply Co.'s Goodwell, Okla., store to the Oklahoma City headquarters office and has been promoted to assistant manager and elected vice president. **Lon Belcher** replaces Cannon as store manager at Goodwell.

Budd Parks has been appointed to the newly created office of general comptroller of Black, Sivalls & Bryson, Inc. Parks will establish his headquarters in the company's executive offices in the Power & Light Building, Kansas City, Mo.

At the quarterly meeting of the board of directors of A. O. Smith Corp., held in Milwaukee recently, **M. J. Vollmer**, assistant secretary and assistant treasurer, was elected a director to replace **John Leekley**, resigned.

E. F. Shiels has been appointed sales engineer, Machinery Division, of International Derrick and Equipment Co. at Dallas. **Blaine Johnston, Jr.**, has been appointed sales engineer, Machinery and Export Division at Dallas. **N. J. Herman** has been appointed sales engineer, Machinery Division of Ideco at Dallas. **Don J. Shaw** has been appointed machinery sales representative. He will handle equipment sales in Texas, Louisiana, and Mississippi.

Brookhaven, Miss., is the site of a new Jones & Laughlin Supply Co. store. Personnel of the new location are: H. V. Pond, local store manager; G. E. Markland, field salesman; and R. S. Roquemore, field salesman. Supervision of the store will be under J. A. Evans, Jr., district sales manager headquartered at Shreveport

A. H. Milnes, recently of Bristol, England, now making his home in Cleveland, has been appointed chief engineer of The Steel Improvement & Forge Co., Cleveland.

H. D. Foster has been named to the important post of manager of Goodyear Tire & Rubber Co.'s Mechanical Goods Division, succeeding the late W. C. Winings. **Sam DuPree**, sales manager of Goodyear's molded goods plant in St. Marys, Ohio, will come to Akron as assistant manager of the Mechanical Goods Division.

E. J. WHETZLE

Advertising headquarters of International Derrick & Equipment Co. has been moved from Columbus, Ohio, to 1315 Pacific Avenue, Dallas. All of the advertising activity of the company will be handled from the office in Dallas under the direction of **E. J. Whetzle**, advertising manager. Fuller & Smith and Ross service the account. Sales promotion will also be handled from Dallas under the direction of **C. R. Athy.**

A. J. Orselli has been appointed general manager of construction of Bechtel Corp. **B. G. Aldridge**, formerly of Union Oil Co. and Fluor Corp., has recently become associated with the company's engineering division. Orselli will make his headquarters in San Francisco, and Aldridge at Los Angeles.

George J. Stanley, director, vice president, and general sales manager for Aluminum Co. of America, has asked to be retired as vice president and general sales manager on July 1. He will continue as a director of the company. **Ralph V. Davies, Robert B. McKee**, and **Donovan Wilmot**, assistant general sales managers, have been promoted to vice presidents of the company. Davies also will become general sales manager, succeeding Stanley.

The "Automatic" Sprinkler Co. of America announces the organization of a new affiliate, "Automatic" Sprinklers do Brasil S/A, Sao Paulo, Brazil. Plans for a modern factory, to be located in Sao Paulo, are now nearing completion. The representative and recently elected president of the company, **Clyde M. Wood**, C. E., has been in Brazil since November 1945. Vice president is **Sebastiao de Almeida Ribeiro.** Other officials include **John M. Coleman** and **Floyd F. Thornton**, together with a staff of local personnel. Offices are located at Praca da Se 371, Salas 709-12, Sao Paulo, Brazil.

Larkin Packer Co. has expanded its sales and service facilities to the oil industry. The new salesmen are: **Joe Chastain, R. G. Fones**, and **Wiley Ford. G. F. Robinson** was transferred from Mt. Vernon to Ardmore, Okla. Chastain, who recently returned from Argentina where he was chief petroleum engineer, Northern Division, for Standard Oil Co. of New Jersey, will make his headquarters in Midland, Tex. Fones was formerly with Halliburton Oil Well Cementing Co., as a special tool operator. He will make his headquarters in Lafayette, La. Ford is a former Franklin Supply Co. employe. His sales territory will include the Illinois area, with headquarters in Mt. Vernon, Ill.

Mixing Equipment Co., Rochester, N. Y., has announced the appointment of additional representatives to increase their field-engineering services to customers in the Eastern Seaboard area of Philadelphia, New Jersey, Delaware, and Maryland. The Maleson Co., Philadelphia, has taken over the entire territory formerly handled by **J. E. Snyder** who has retired and, in addition, its engineers will cover the southern section of New Jersey, all of Delaware, the major portion of Maryland and eastern central Pennsylvania formerly contacted through **Glenn J. Moorhead**, eastern divisional sales manager. The customer contact engineers of Maleson Co. who will now serve the area are: **M. S. Maleson, Leonard Maleson, E. Brosius, J. E. Reynolds** and **S. R. Gerhart.**

A new branch office of the Minneapolis-Honeywell Regulator Co. to service the San Joaquin Valley of California has been located temporarily at 1357 N. Street, Fresno, until permanent quarters can be obtained. **Clyde N. Bradley** has been appointed district representative for the company.

Coming back into service in the Bechtel Corp. is **George S. Colley, Jr. Robert L. Bridges**, a member of the company's law firm of Thelen, Marrin, Johnson & Bridges, will serve as an active member of the company directorate. Another new director is **John M. Rogers**, vice president of International Bechtel, Inc. **C. Stribling Snodgrass** has also been included in the directorate.

Harold V. Engh, executive vice president of Anaconda Wire & Cable Co., New York, has been elected president and general manager of The Pyle-National Co. Engh is a member of the board of directors of both Turner Brass Works and the National Bank & Trust Co. of Sycamore, Ill. Other officers of the company elected with Engh are: **A. N. Martin**, vice president; **John L. Vogel**, secretary-treasurer; and **Ella M. Franklin**, assistant secretary-treasurer. **Donald S. Boynton, John W. Leslie, Ernest Waud, Logan A. Vilas**, and Harold V. Engh were elected directors.

RUDOLPH FURRER

Rudolph Furrer has been elected vice president in charge of engineering for American Car & Foundry Co. He succeeds **Edmund Dana Campbell**, former vice president in charge of engineering, who recently retired at his own request, for health reasons, after being with ACF since 1904.

Preach Gooden has opened a new Patterson-Ballagh warehouse at 3100 South Central Ave., Oklahoma City. Preach was transferred from Rangely, Colo., to head the new store.

Robert C. Becherer has been appointed plant manager of the Ewart plant of Link-Belt Co. in Indianapolis. **Warren H. Maxwell**, formerly superintendent of the positive drive shop of the Ewart plant, has been appointed general superintendent. **S. L. Hauck** becomes assistant general superintendent of the Ewart plant. **Carl O. Schopp** has been named superintendent of the plant foundry.

Southern Gas & Equipment Co. has moved its headquarters to the Berryhill Building in Sapulpa, Okla. The move will place the company nearer the Southern Tank Division plant as well as increase warehouse facilities and office space for administrative, sales, engineering, and accounting personnel.

Air Reduction Sales Co. has opened a new oxygen plant at Baton Rouge, La. The plant was built to supply the increasing oxygen demands of Louisiana industry, particularly in the south and central parts of the state. Plant superintendent will be **J. L. West**, who was formerly in the same position at the Shreveport plant. Another new oxygen plant has been opened in Decatur, Ill., with **George H. Klingenberg** superintendent.

L. L. Ballew, formerly of The Continental Supply Co.'s Seminole, Okla., store, has been made manager of the company's Pratt, Kans., store succeeding **A. M. Rouse.** The latter has been transferred to Ellinwood, Kans., as manager succeeding **D. L. Smith**, who now serves in the capacity of city salesman in Wichita.

T. R. Coffey has been named manager of sales of Globe Steel Tubes Co.'s Detroit office, effective July 14. He will be located in the General Motors Building at Detroit. Coffey has served as manager of sales of the Wisconsin office since 1943 and prior to that time in various capacities in the general sales department since 1928.

Terry Russell, sales engineer for McEvoy Co., Houston, departed June 9 on a 3-month trip of South American oil fields. In addition to introducing company equipment, Russell will conduct a survey of producing conditions as they apply to his company's well-head and gas-lift equipment.

James E. Mavor, 514 M. & M. Building, Houston, and **Gene McIntyre**, 727 West Seventh Street, Los Angeles, have been appointed by Tapecoat Co., Evanston, Ill., to represent the company's pipe-joint-protection material. Mavor will handle distribution in the Mid-Continent field through his own representatives, **F. P. Kelly**, covering Louisiana and East Texas, and **Bob Lingle** at Corpus Christi. McIntyre will cover California, Washington, Oregon, Nevada, and Arizona.

O. A. Schilling has been named eastern sales manager of Goodyear Tire & Rubber Co.'s Mechanical Goods Division. He succeeds **H. D. Foster**, who was recently appointed manager of the Mechanical Goods Division.

Thorkild Avnsoe has been elected executive vice president of Lone Star Cement Corp., New York. **J. H. Leikhim** succeeds **A. V. Lemasters** as vice president and treasurer. Lemasters retired May 22. **Clairborne C. Van Zandt** has been appointed chief engineer. Other appointments include **I. C. Brotzman** as domestic operations manager, **N. M. DeBruin** as foreign operations manager, and **Fred C. Schieber** as general superintendent, eastern division.

F. E. Reishus, formerly manager of Sioux Falls, S. D., has been transferred to Lincoln, Neb., to succeed **J. L. Henn**, who has retired. **E. R. Zimmerman**, formerly assistant manager at Sioux Falls, has been promoted to branch manager at that point.

Henry H. Paris has been appointed exclusive distributor for seamless-welding ells and fittings in Texas, Arkansas, and Louisiana for Dresser Manufacturing Division, Dresser Industries, Inc., Bradford, Pa. Paris maintains his office and warehouse at 1125 Rothwell Street, Houston.

James S. Walker has been appointed technical-service representative of Hooker Electrochemical Co. Walker, a graduate chemist of Union College, joined the company staff in 1940 and has had experience both in research and in plant operations. He was engaged in process supervision prior to his recent appointment.

Art Moore, vice president-sales manager of Oil Base, Inc., Los Angeles, attended the meeting of the Rocky Mountain district A.P.I. Division of Production, held at Yellowstone National Park June 25. From there he is visiting Edmonton, Canada; Rangely, Denver, Oklahoma City, Fort Worth, Dallas, Houston, Lake Charles, New Orleans, and Brookhaven, Miss., before returning to Los Angeles late in July.

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THE OIL AND GAS JOURNAL
P. O. Box 1260, TULSA, OKLAHOMA

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FOR SALE: Six New Kobe, 2½ inch tubing insert, pumps, one Triplex—Bargain for immediate sale. Ben Beckham, Jr., Box 134, Overton, Texas. Phone 3921.

FOR SALE: Shaffer power draw works, powered by two J. L. 1335 Buda engines compounded. Suitable for 5,000 foot work. In A-1 condition. Price $7,500. Terms. Melton Well Service, Box 1360, Seminole, Oklahoma.

FOR SALE: 10,000 sq. ft. steel airplane landing mat, 15" x 10' Sections. Will make into portable all-weather lease road for hauling equipment, etc. 10c per sq. ft., F.O.B. Tulsa, Oklahoma. Subject to prior sale or withdrawal. Also have several light plants at bargain rates. Marshall Travis, 110 Midco Bldg., Tulsa, Oklahoma. Phone 5-2251.

New and Reconditioned
VALVES and FITTINGS
VICTORY SUPPLY COMPANY
Phone 5-2073 P.O. Box 754
Tulsa, Oklahoma

EQUIPMENT FOR SALE

FOR SALE: 250 new 8⅝" OD 32# 8V Thread seamless steel couplings located at Oklahoma City. Price $4.50 each. Cities Service Oil Company, H. D. Patridge, Bartlesville, Oklahoma.

FOR SALE: 1—14" x 14" Ideal horizontal twin cylinder steam drilling engine. 2—15½" x 8½" x 20" Ideal steam slush pumps. Excellent condition. Priced right.
Lucey Products Corporation,
Tulsa, Oklahoma.

1 SUPER Wilson 46 Model, single drum, A mast telescoping pole, Buda Motor, mounted on GMC tandem truck. 1 H Cardwell 46 Model, single drum, 8 x 10 telescoping pole, mounted on tandem Studebaker. 1 Wilson Super skid job. Equipment can be seen at Pauls Valley, Oklahoma. Telephone 2032, Henderson, Ky.

FOR SALE: 4 slightly used Barrage Balloon winches. These are built for relatively light loads at high speed. Have large drums for long length of light line. Direct connected to 50-70 horse 6 cylinder Waukesha motor with clutch and three speed transmission. Should be useful for exploration or testing. Price less than motor cost. P.O. Box 4313 Memphis, Tenn.

PRICED FOR QUICK SALE

—One—12 x 12 Lucey Twin Cylinder enclosed oil bath Steam Drilling Engine Serial No. WL 234-GM 6000.

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Box 686, Ardmore, Okla.

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STEEL STORAGE TANKS

26—10,000 Gallon Capacity Tank Car Tanks

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"ANYTHING containing IRON or STEEL"

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STEAM DRILLING ENGINE, Gardner-Denver, Model DEA-1000-12" x 12", horizontal twin cylinders, excellent condition. Write or call Joseph Weidenhoff, Inc., 4340 W. Roosevelt Rd., Chicago, Ill., Mr. D. R. Kennedy, Nevada 3233.

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FOR SALE: Failing 1000 rotary drill. Good condition, perfect for shothole or water well drilling. Good tires, fair truck, priced for quick sale at $2750.00 cash. Contact F. M. Mitcham, Graham, Texas.

1 STAR 45 ST Spudder with Hercules engine. Both in excellent condition. No tools. Located 10 miles East of Drumright, Okla. 1 Ft. Worth Super D Spudder with practically two strings of tools, located on Lysite Mountain, Wyoming. Travco Equipment Company, 110 Midco Bldg., Tulsa, Oklahoma. Phone 5-2251.

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7,500 Foot Full Electric Rig powered with two NKU Waukesha motors. Complete with two pumps, rotary, swivel, traveling block, blow-out preventor, 4½" drill pipe and all equipment except derrick to make complete rig. For full details call, wire or write

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COMPLETE 700 h.p.
Rotary Drilling Rig

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Executive Aircraft For Sale

Lockheed Lodestar, Model 1856, NC 75220, with 9 airline seats, writing table, rest room.

Powered by two Wright 1820-87 engines.
Total Airframe Time: 1295 hrs.
Total Time Engines: Left: 673 hrs. Right: 295 hrs.
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$32,500, F.A.F., New Orleans

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